THE CONDOR

A Magazine of Western Ornithology

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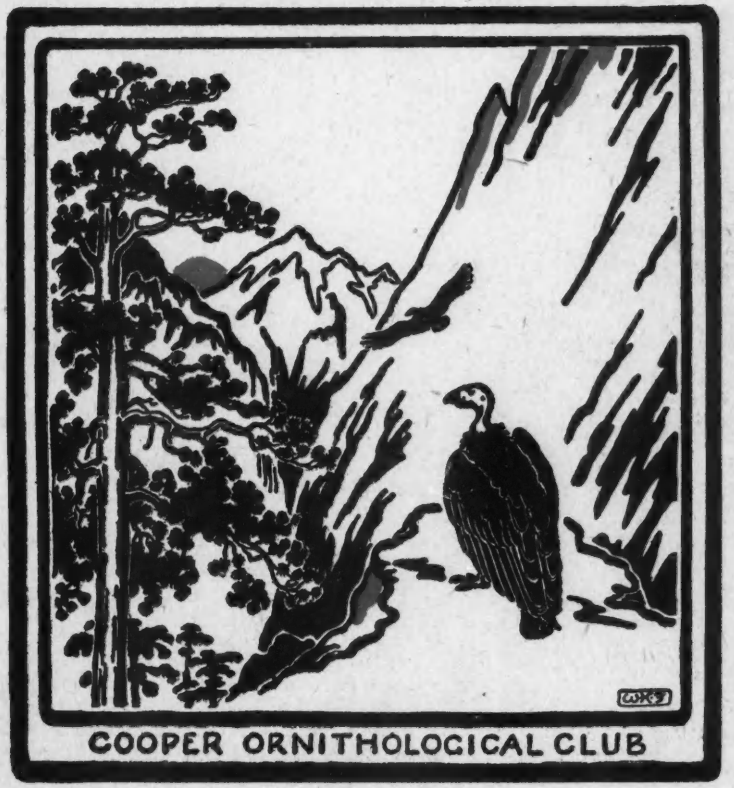

COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

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Issued March 15, 1934

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SONG SPARROWS AND TERRITORY

WITH FOUR ILLUSTRATIONS

By MARGARET MORSE NICE

The Mississippi Song Sparrow (*Melospiza melodia beata*) near Columbus, Ohio, is a typical territory-holding bird, on the whole conducting itself much as does Howard's (1920 and 1929) classic example of this behavior, the Reed Bunting (*Emberiza schoeniclus*). Since 1930, I have banded with colored and aluminum bands about 270 adult Song Sparrows on their territories on Interpont (forty acres of flood plain between our house and the Olentangy River). In 1929, an intensive study of two pairs provided the foundation for these population studies.

The male Song Sparrow, if a resident (see Nice, 1933*c*) remains on or near his territory throughout the year, although not defending it from other birds during the molt, or in the fall (except from a young male trying to settle on it), or in the winter. If a summer resident, he stays on his territory throughout his stay here. Females never hold territory for themselves, in contrast to the Redbreast (*Erithacus rubecula*) (Burkitt, 1924) and California Shrike (*Lanius ludovicianus gambeli*) (Miller, 1931). Males do not drive off their mates at the end of the nesting season, as Burkitt found was the case with the Redbreast.

The Technique of Territory Establishment.—Since territory constitutes the basis of most of melospizan behavior in this region, it is natural that the procuring and defending of territory should have a definite technique consisting always of song and display and sometimes of combat. The bird in possession of a territory signifies the fact, as is well known, by his loud song, which is repeated five to seven times a minute from a conspicuous perch. But when a new male appears with intent to settle next door, or perhaps to appropriate a portion of the first bird's territory or even to take it entirely, then the owner's behavior changes at once and the procedure of territory establishment begins. The new bird sings constantly, eight to ten times a minute, usually puffed out and sometimes vibrating a wing, while the owner, silent and menacing, follows him closely. After a while the first bird starts to chase the newcomer, but the latter always returns to the piece of land he covets. Finally there is a fight on the ground, after which the birds separate and each sings triumphantly on his own territory.

This is the complete pattern, but there are countless variations according to the seriousness of the participants, while the roles may be changed as the contest pro-

gresses. It usually happens that the less serious the encounter the greater is the posturing, as Howard maintains (1929); in these ceremonial affairs the chase and fight are omitted. During the initial stage there is the greatest of contrasts between the humble, imploring role of the new arrival and the glum, threatening attitude of the bird already in possession.

The boundary quarrels of the Prairie Horned Lark (*Otocoris alpestris praticola*) according to Pickwell (1931) are fairly similar to the behavior of the Song Sparrow; but with the former species the fighting is always in the air.

Behavior in Fall.—After the molt the male usually indulges again in singing on his territory. Some males sing very little, but others sing a great deal. Two of my residents (4M and 50M) gave two full months of fall music. Since these birds begin to sing in late January or early February and continue through July, they each have an eight months season of song each year, even longer than the Horned Lark which Pickwell (1931, p. 38) believed held the record in this respect for passerine birds. This singing differs little from that of spring, except that less complete songs are given than earlier. There is no "return to primitive irregular singing" as believed by Wheeler and Nichols (1924, p. 499) and Saunders (1929, p. 58). The prolonged, formless singing heard in the fall comes solely from juvenile birds, and a male that has once definitely established adult singing (this takes place in February) *never* returns to warbling.

Some of the juvenile resident males take up their territories in September and October and there they remain for the rest of their lives. Others try to do the same, but are driven out by the adult owner as soon as he finishes his molt. Still others apparently do not attempt to settle down until February. As for the summer residents, I have evidence that some of them choose their territories during their first fall and return in the spring to a definite area, which they try to claim for their own.

Behavior in Winter.—The reason that the adult residents of both sexes stay in the vicinity of their territories in winter, if sufficient food and cover are present, would seem to be largely habit. The birds grow attached to their homes, even though they have no tendency toward exclusiveness at this season.

Similar behavior is shown by winter residents, at least by some of them. For three years one of these birds, a male, has returned to the same restricted area and spent the entire winter there.

In winter Song Sparrows do little but eat weed seeds (on January 16 from 8:00 to 9:00 a. m. 50M spent 54 minutes eating), and consequently most of them gain in weight, some of them much. The average weight of females throughout the fall and spring is about 20 grams; in winter some reach 23 to 25 grams. Males average about 22 grams in fall and spring; but many weigh from 25 to 28 and one even 30 grams in winter. The birds are never fat in fall, the gains not appearing until December.

Other species of birds that winter here and which I have opportunity to weigh frequently do not show appreciable gains—the Slate-colored Junco (*Junco hyemalis*), Tufted Titmouse (*Baeolophus bicolor*), and Carolina Chickadee (*Penthestes carolinensis*). All these are much more active and range much farther than do the Song Sparrows.

In winter the male resident may range over an area approximately 160 by 250 yards, a district from six to ten times as large as the breeding territory. In cold spells birds may come considerable distances for brief visits to my feeding station, several from 300 yards, while two traveled more than a quarter of a mile.

In the coldest weather, especially if there is snow, Song Sparrows are apt to form small flocks of loose organization. One day in January, I watched a juvenile

resident (50M) leave his regular flock in our garden and join another 200 yards to the south, the birds here paying no particular attention to him. After staying with them for five days, he returned to his first companions.

The composition of the flock nearest us during three winters has been different every year except for two birds—4M and 50M. Each year there have been one or two juvenile resident males, and three or four winter residents, most of which have been males. This flock has never been a "family party," nor wholly a "neighborhood group," since some of the birds nest here and others in some region to the north. The same conditions probably hold in the other flocks in this region, as young Song Sparrows never stay with their parents after they are a month old, nor do mates associate with each other during the fall and winter, even if both are resident and stay in the same area throughout the year. I find that the sex of my Song Sparrows can usually be told by the wing measurement, males almost always showing a length of 65 mm. or more, and females usually less than 63 mm.

Behavior in Spring.—Some resident males begin to proclaim their territories in late January or early February, according to the weather, although a few juveniles do not do so until late February. Summer resident males return from late February through March and at once take up their territories. The territories embrace about three-fourths of an acre.

Some males, both resident and summer resident, keep the very same territories year after year, an adult summer resident being able to drive out any juvenile resident that may have taken up his territory. Other males change territories to some extent, even when no change has occurred in the environment. The farthest of these voluntary moves has been about 100 yards.

Each year a few adult males move into Interpont, presumably driven from their original territories by cultural changes. On March 1, 1933, the city started to destroy much of the underbrush and cover on Interpont, and consequently drove off four male Song Sparrows. Two of these had settled only a few months before; they disappeared entirely. The other two had nested on Interpont in 1932; one of these moved across the river, a distance of perhaps 50 yards, but in May returned to his old territory; the other moved 180 yards south.

The female has a strong tendency to return to the place where she nested the previous year, but it often happens that she must settle elsewhere, because some other female has pre-empted her place. She does not try to drive away such a rival, but usually joins some male in the near vicinity, although occasionally she is found at some distance.

One female (K28) nested for two years in almost the same place (see fig. 12), but the third and fourth years lived 800 yards to the south. Her first home was in a pretty, tangled wild spot, while the last was on a dump, containing little but rubbish and weeds. And when I first found her, there were still several unmated males singing patiently in the vicinity of her former nesting place!

In forty cases involving thirty-one banded females I know the nesting territory two years in succession. In thirteen cases the bird returned to exactly the same place, in seventeen to an adjacent territory, in six cases she settled from 160 to 225 yards away, in two cases 330 yards, in one 500, and in one 800.

The question of the nesting places of the young birds in relation to their birth places is of especial interest. So far no young bird has taken up his father's territory nor even a neighboring territory. Twelve resident males settled from 100 to 800 yards from their birth places, the median distance being 335 yards. Six summer resident males took up territory at the following distances from their birth places: 175, 250, 300, 300, 335, and 1550 yards.

Two resident females nested 300 yards from their birth places. Eight summer resident females nested at the following distances: 150, 240, 300, 360, 450, 500, 880 and 1440 yards.

In other articles (Nice, 1931 and 1933*b*) I have given maps showing the territories of the males and females in succeeding years and of the young in relation to birth place. In the present paper the history of four families will be shown, the same families whose genealogies were given in a paper recently published (Condor,

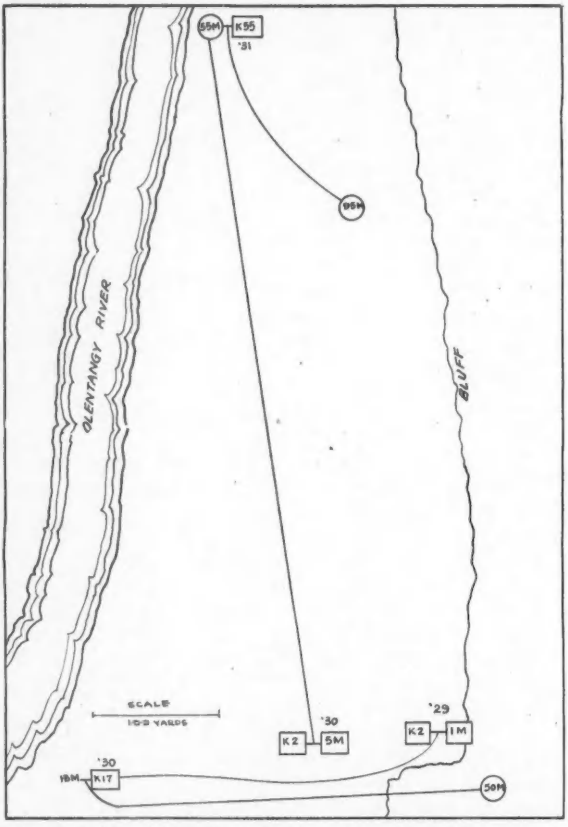

Fig. 9. K2 and her Descendants. A circle signifies a resident, a square a summer resident. An unenclosed number means that the bird's status was unknown. The date gives the year of mating.

35, 1933, p. 221). These maps show the territories of twelve young in relation to birth place—six resident males, two summer resident males, one resident female, and three summer resident females. They also show the territories of six females two years in succession, two females three years in succession and one female four years in succession.

These maps show the direct descendants in each line, and the mates of these descendants if any offspring are known to have survived, or if anything is known of the previous or subsequent history of these mates, in which case the earlier or later territories are shown.

There are doubtless more surviving descendants than I have knowledge of; first, because only in 1930 did I follow the nesting season through to its end (having left Columbus, June 6, 1931, and June 14, 1932); second, because I do not find all of

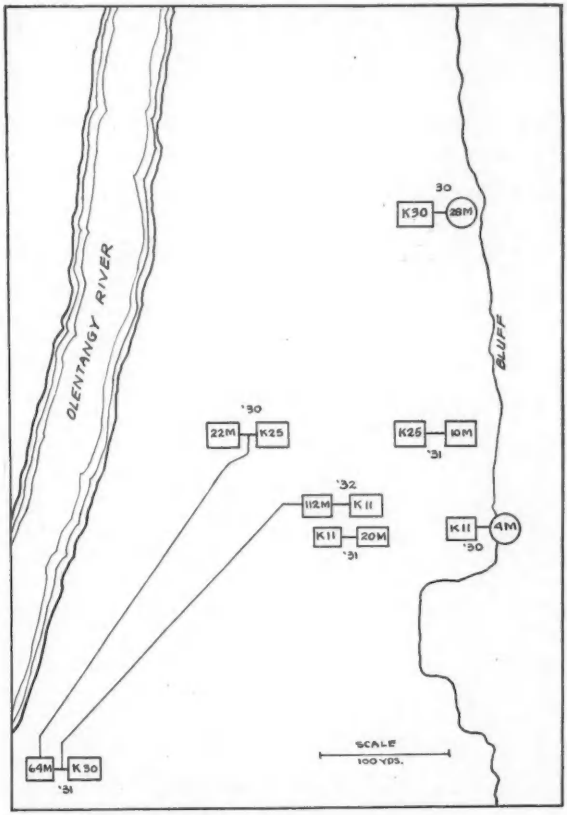

Fig. 10. 22M, his Son and Grandson.

the banded nestlings that survive to breed. Although I take a number of censuses in winter and spring over the regions adjoining Interpont, it is impossible for one person to examine every Song Sparrow within a radius of a mile, and one bird of each sex has been found almost this distance from its birth place. Each year I find about twice as many survivals of males banded as nestlings, as of females, showing that the latter, as would be expected, cannot return as faithfully to the vicinity of their birth places as do the males.

Figure 9 shows the descendants of K2, a summer resident female that had two summer resident mates, a summer resident daughter, resident son and two resident grandsons. One bird (55M) died during his second summer. His son (95M) in his first winter sustained a broken leg that never healed properly; he was deserted by his mate before nesting began and did not survive his second winter. Another (K17) raised only the first of her three broods and did not return a second time. The only bird shown on the map that is still alive is 50M. Twice I have banded great grand-

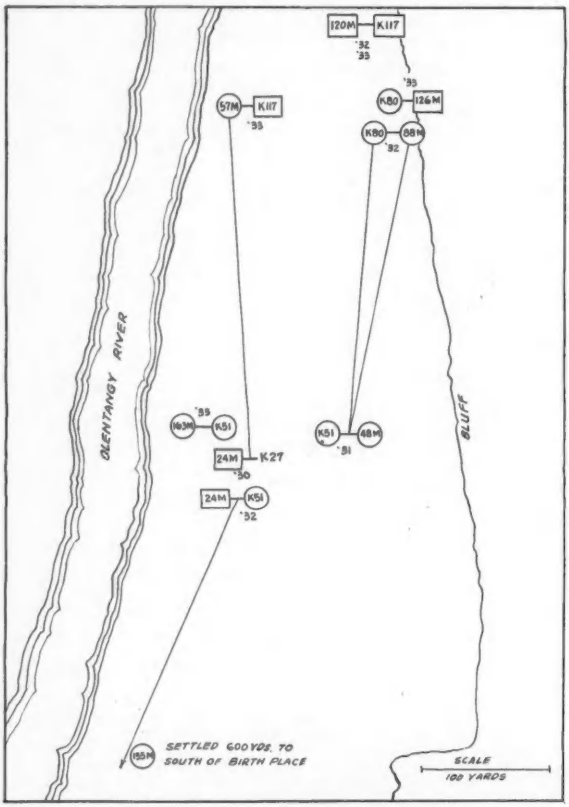

Fig. 11. K51's and 24M's Descendants. See fig. 12 for 24M's and 126M's mates in 1932; K117 rejoined 120M in 1933, but after his death joined 57M.

children of 1M and K2; five of 50M's young in June, 1931 (none of which survived to my knowledge), and three on May 17, 1933.

On figure 10 the territories are given of my only straight summer resident line for three generations—22M, his son and grandson, and other nesting places of the mates of each of the males. The second (64M) nested two seasons, but in 1932 raised no young before we left. The third (112M) also raised no young that year before

my departure; this year, although he has had two mates, both of them disappeared early in the season and since then he has been a widower. Of the birds shown on this map, besides 112M, 4M, now at least six years old, and 10M, four years old, are alive at the present time.

On figure 11 we have no third generation, but a number of half brothers and one case of full brother and sister. A summer resident (24M) has had two resident sons that settled in opposite directions from home. Number 57M is an interesting

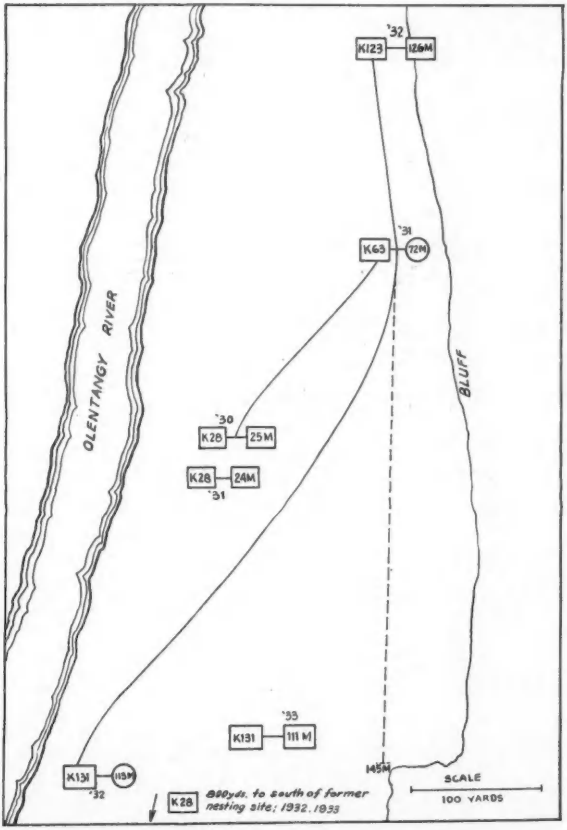

Fig. 12. K28: her Descendants and Residences during four Seasons. Nesting place of 145M unknown; trapped in place indicated, October 4, 1932.

bird, because he has always been retiring, almost never singing, yet he has suvived to the age of three years and has raised young at least once and probably several times. His present mate (K117) remated with her last year's mate (120M), but, upon his death, joined 57M.

Only one resident female (K51) has survived three years. In 1932, as 24M's mate, she was the mother of a resident son (155M). The year before, with a resident mate, she had a resident son and daughter that wintered together and mated in the spring. Their young from the first nesting were banded, but did not survive. 88M died later that season, and this spring K80 mated with 126M. The birds shown on this map that are now alive are K51, K80, 57M, and 155M, besides 126M, 163M, and K117. Yet the only offspring raised by these four pairs before June 14, in 1933, were four young of 155M; a disastrous flood and various enemies emptied all the other nests.

Figure 12 shows an interesting bird (K28) and her descendants. The surprising change of residence of this grandmother has already been mentioned. Another notable event in this family was the survival of three young from one brood of five, the two sisters, K123 and K131, both nesting on Interpont in 1932, while their brother possibly nested to the east, in town. (He was found in the place indicated October 4, 1932, but never since.) Last spring I banded the young of K28 and a few days later two families of her great grandchildren, but none of these was found later.

Both K28 and K131 returned this spring, but the former must have come to her end in May. So K131 is the only direct descendant living today so far as I know, although of the other birds shown on the map, 111M and 126M are still alive. All of K131's attempts at nesting this year have so far come to grief, except for one poor little nestling rescued from the path of the plow and at present entrusted to the care of a pair of House Wrens (*Troglodytes aëdon*).

If all the young were banded every year, there would be more chance of getting a fourth generation of breeding birds on my charts; at present my hopes for additions to these four genealogies rest on eight nestlings. The brief histories of these families show the great risks run by young and old of this species and the slender hold on life of any one individual.

Summary.—Melospiza melodia beata, in central Ohio, is a strongly territorial bird.

Territory is obtained and defended by a specialized technique involving song, display, and combat.

Summer resident males remain on their territories throughout their stay, and resident males and females do so throughout the year, although not defending their territories except from February to the end of the nesting season.

Some of the resident males settle on their territories during the first fall.

Song Sparrows are never fat in the fall, but most of them gain in weight during the winter.

Winter flocks are never family parties, nor, in this region, wholly neighborhood groups.

Males are notably faithful to their territories, while females return to their former nesting places if possible.

The distance from the birth place that 28 young birds of both sexes have settled, varied from 100 to 1550 yards, the median being about 320 yards.

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156 West Patterson Avenue, Columbus, Ohio, June 15, 1933.

RECENT OCCURRENCES OF THE AMERICAN EGRET IN THE SAN FRANCISCO BAY REGION

By EMERSON A. STONER

A slow but steady increase has been noted by bird observers during the past nine years in the numbers of American Egrets (*Casmerodius albus egretta*) in the San Francisco Bay region. Grinnell and Wythe in their "Directory to the Bird-life of the San Francisco Bay Region" state under this species that the most recent record in the Bay region prior to 1925 was "a single individual observed in January, 1880, in San Rafael, Marin County" (J. Mailliard, Condor, 13, 1911, p. 50). The observation for 1925 referred to is one made by the writer (Condor, 28, 1926, p. 175) of twelve seen on the Suisun marshes between Benicia and Cordelia, on November 16. A prior record, of a single individual, has since been reported by T. I. Storer (Condor, 33, 1931, p. 34) who saw "one bird on marsh near Teal Station southwest of Suisun" on October 13 and 25, 1924. This latter record, then, is the first recorded observation of an American Egret in the San Francisco Bay region since 1880—a period of forty-four years.

Egrets apparently staged their comeback in the Suisun marshes before appearing in the more southerly portions of the Bay region. The first observation recorded in the *Condor* for the southern part of the Bay region, or the San Francisco Bay proper, is "during January and February (1928) near the works of the Portland Cement Company at Redwood City" (Condor, 30, 1928, p. 202). The American Egret was not added to the Life List of the Audubon Association of the Pacific until 1930, when an observation of three on September 14 was reported from Baumberg, Alameda County (Gull, October, 1930). Records published in the *Gull* in addition to the Baumberg record show occurrences at Lake Merritt, Oakland (Gull, November, 1930), near Redwood City (Gull, March, 1931), Bay Farm Island, Alameda County (Gull, May, 1931), and San Mateo and Dumbarton bridges (Gull, December, 1932, and January, 1933). Observations in this same general area are also recorded in *Bird-Lore's* "The Season" and under minutes of the Cooper Club

meetings, Northern Division, in the *Condor*. During the past two or three years there have no doubt been many observations for this section of the Bay which have not been recorded due to the increasing abundance of this species.

I can find no recorded observation for the northern shores of the San Francisco Bay proper, that is, north of the Golden Gate and Oakland. The observation "at the lagoon near Bird Rock, Marin County" (Gull, July, 1931), I am advised by Mrs. Laura A. Stephens, is a Drake's Bay observation. Mrs. Stephens, in a letter dated November 10, 1933, advises that she knows of no other Marin County record except for seven seen at Bolinas on May 7, 1929. Both of these observations are for the ocean side of Marin County rather than the Marin County Bay shore.

The entire Solano County shore, however, is populated either intermittently or continuously during the winter season, or, more properly, at all times other than the breeding period. In the western end of the county, along the San Pablo Bay, from the western border of the county to Vallejo, the Egret during the past four years is often found among the abundance of shore and water birds. Published observations for this vicinity include "Sears Point Road" (Condor, 33, 1931, p. 47), "near Vallejo, April 10, 1931" (Bird-Lore, 33, 1931, p. 206), and "near Vallejo, October 20, 1931" (Bird-Lore, 34, 1932, p. 22). I observed eleven Egrets while traveling over the Sears Point Road on October 28, 1933. This road crosses six miles of marsh west of Vallejo.

The greater portion of my records covers the territory in Solano County between Benicia and Cordelia. The paved highway skirting the Suisun Marsh for a stretch of fourteen miles between these towns has been covered by me personally by automobile many times a month. I have been assisted in my study of Egret occurrences in these marshes by Mr. James Barkley, a teacher in the Fairfield High School, who covers the above-mentioned road daily during the school season, or five times per week from September to June. Mr. Barkley has kindly reported to me any unusual occurrences noted by him. Observations finally became too numerous to list, it being very unusual during the past five years not to make an observation of Egrets during the period from late August to the middle of April. A survey of my records shows the earliest date of arrival in the fall to be August 11 (1933), and the latest date of departure in the spring to be April 24 (1930). As for numbers seen in this section, the following summary by years is made. These figures report the greatest number of birds seen at one trip along the road referred to.

1925-26, upwards of 12 birds	1929-30, upwards of 15 birds
1926-27, no observation	1930-31, upwards of 96 birds
1927-28, upwards of 8 birds	1931-32, upwards of 52 birds
1928-29, upwards of 40 birds	1932-33, upwards of 108 birds

My observations indicate that Egrets arriving in flocks in the fall, and not migrating farther, split up after a week or two, and spread over the marsh where they spend the winter, ordinarily as pairs or individuals. A large or favorite pond, however, may have a population of upwards of a dozen birds; especially is this true during the shooting season when many birds are frightened from their chosen ponds. Recordings such as "two in pond near country school", or "one near Goodyear Station", have been made continuously throughout a season, indicating that birds remaining here as winter residents have certain areas or ponds chosen by them for use as foraging grounds. If a bird is frightened from this chosen territory, the observer may expect to find that it has returned when he passes by again an hour or two later. Flocks passing through, but lingering a week or two in our marshes, remain in flocks during the period of their stay. I find, too, that birds wintering here assemble again in flocks before their departure in the spring.

Most of the Egrets which winter here depart about the middle of April. It has been a matter of conjecture to me where these comparatively late-leaving birds nest. The colonies of American Egrets known to nest in the San Joaquin Valley (Merced County) have constructed or remodeled their nests, and some are sitting on eggs, before most of the Solano County wintering birds migrate from these marshes. The California Blue Herons (*Ardea herodias hyperonca*) nesting in our Suisun Marshes have eggs hatching out before many of our wintering Egrets leave for their nesting grounds. It is quite possible, then, that some of the birds wintering here go north of our California borders to breed.

As for the habits of these beautiful birds, it will ordinarily be found that they are too shy or wary to allow of close inspection. A bird which is closer to the highway than a distance close to the width of a city block will often fly as soon as a car is stopped to make observations. I haven't yet approached an Egret sufficiently close to take a good picture. A flock of eighty-nine birds on the Suisun Marsh was approached within a distance of about seventy-five yards, which is as close an approach as I have made except in a moving vehicle. They are especially restless a few days before departure in the spring, apparently receiving the urge to migrate but being not especially anxious to leave their winter foraging grounds. I have endeavored to locate their roosting site, or sites, by staying in the marsh until after dusk. The birds which were watched, however, did not leave their feeding grounds until so late that it was impossible to trace their flight after they had gone a short distance away. The general direction leads me to believe, however, that they roost in one, or more, of a group of eucalyptus trees at considerable distance across sloughs and marsh over which it was impracticable for me to try to follow them. This species is respected on our marshes by hunters and I have heard of no instance of shooting of Egrets at any of the gun clubs, nor have I found a dead bird of this species on any of my trips through the marshes.

I have had little opportunity to make observations on the south side of the Suisun Bay. Mr. Barkley, on a hurried auto trip, without any special searching, noted two birds near Avon on December 25, 1933, thus showing that they are to be found in that area.

The bird is so conspicuous that a comparatively accurate census may be made of any section of the marsh. A steep hill, rising from the marsh to a height of five hundred feet, six miles north of Benicia, is a good observation point from which several square miles can be viewed. As the entire Suisun Marsh is apparently as equally attractive as the territory I have covered, I would estimate a present wintering population for the entire Suisun marshes at around two hundred birds. This is exclusive of transient flocks which would augment the number of birds on the marsh, depending upon size of flocks.

Benicia, California, December 31, 1933.

AN APPRECIATION OF DONALD RYDER DICKEY

WITH TWO ILLUSTRATIONS

By HARRY HARRIS

On several occasions since his untimely death on April 15, 1932, the salient facts of Donald Ryder Dickey's life have been recounted. Dr. Casey A. Wood gave a necessarily condensed résumé of these facts in the October issue of The Auk of that year. There was published in the Bulletin of Yale University No. 91 of October

15, 1932, a formal obituary, which among other data included a list of his academic honors, his business and scientific affiliations, and a partial list of publications to which he had contributed, both illustrative and literary material. The daily press of the country, particularly that of the Pacific coast, noted at some length the passing of this distinguished zoologist. In addition to detailed personalia in such directories as Who's Who in America, American Men of Science, and others, there appeared during his life (in World's Work of September, 1926) a worthy tribute to his artistry and technical mastery in the realm of wild life photography, containing some intimate biography as well as reproducing in connection with the text a selected group of his prints. He had himself, through the pages of several popular American periodicals, notably Outing, Recreation, Country Life in America, and The National Geographic Magazine, established an international reputation in the fields of scientific exploration and the pictorial recording of animal life in the wilds with both still and motion picture camera. Through his contributions to the systematics of ornithology and mammalogy, no less than through his activity in accumulating vast collections of material in support of these contributions, he had early made himself known and respected throughout the ranks of the votaries of vertebrate science. His popular lectures, illustrated by unique motion picture film brought by him out of the wilderness were much in demand throughout the East as well as on the Pacific coast, and won widespread attention and commendation.

It remains now for The Cooper Ornithological Club to voice its appreciation and esteem for this lost friend, and to inscribe in its archives a record of its obligation to him for a vital and never-failing interest in its progress, as well as for his constant cooperation in efforts to establish the publishing society on a more stable and more productive footing. In his own engrossment in founding an academic department dedicated to research in vertebrate zoology his parellel interest in the destinies of the Cooper Club never wavered nor lessened, the Club affairs and plans being for over twenty years very close to his heart.

Dick, as he will always be affectionately remembered by his friends and colleagues in the organization, was a giant of a fellow, well set up and of commanding presence in any company. A gentleman in every sense the term implies, he was possessed of qualities that easily and naturally gave him leadership. Genial, forceful, fair minded, and judicial in his appraisement of counter opinion, his shrewd advice and wise counsel were time and again of constructive value to the business management. Possessed of almost unreasonable modesty, his more material assistance in the solution of Club problems was always rendered in strict secrecy. In this connection the writer will not soon forget being the object of Dick's displeasure on suggesting the advisability of filing somewhere in the records, under cover if necessary, a note of his annual outlay for the audit of Club fiscal transactions. It had been his custom for years to personally meet the cost of this elaborate and expensive service, and the business managers, or more correctly one of them at the time, considered it apropos that this series of benefactions be available as an item for future Club history. His polite but cold insistence that the subject be not again referred to ended the matter.

In like silence it was his pleasure to perform much other constructive service of which there is and can be no record. On the termination of his incumbency as Endowment Secretary his canvass of the membership in the interest of building up the Fund is one of many cases in point. The illustrated brochure prepared under his direction at that time represented no small effort and expense on his part. He struggled for over two years with legal problems and difficulties that seemingly left no way open under California law for the organization to become incorporated, and

only now do his efforts in this direction seem about to bear fruit. He took this assignment with his usual seriousness and gave it his usual thorough consideration, employing legal talent in the matter that was satisfied privately.

At the very outset of his career on his graduation from Yale in 1910, having previously been enrolled in the University of California, he was for the time deprived of any set purpose by a physical affliction so serious as to threaten his life. An in-

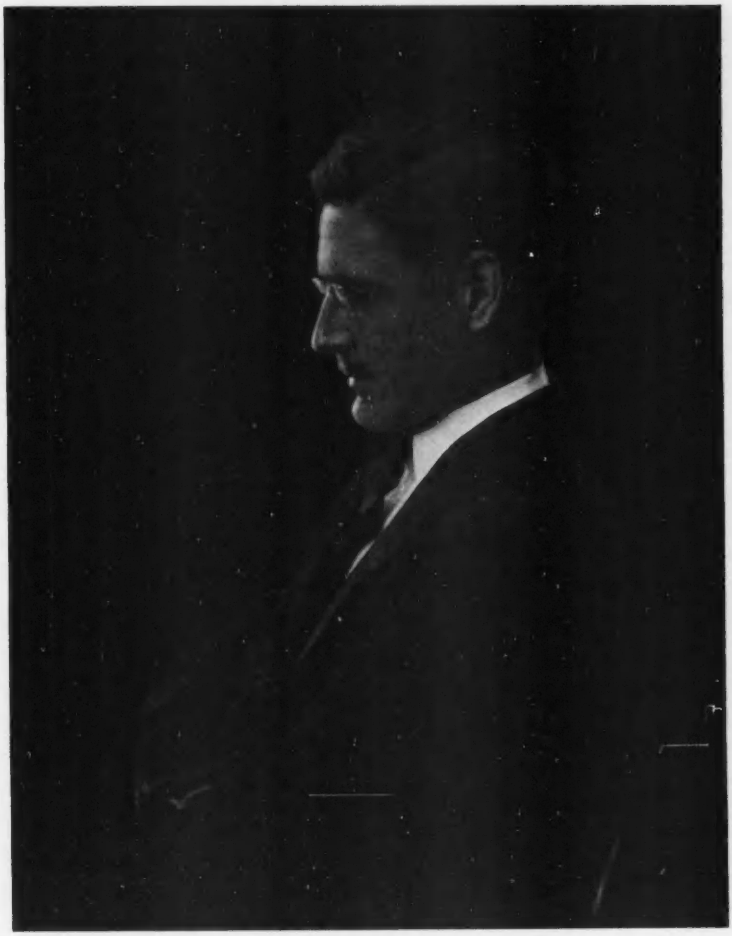

Fig. 13. Donald Ryder Dickey, 1887-1932.

firmity of the heart further aggravated by an excess of application to academic routine brought on a complete physical collapse, and though this led eventually to his choice of ornithology and mammalogy as his life's work, it led ultimately to his sudden death. During the year of his graduation he returned to California an invalid in

a wheeled chair, and from this time dated his affiliation with the Cooper Club. Finding it imperative to be as continuously in the open as his slowly returning strength permitted, and being stimulated by personal contact with such out-door notables as John Muir, John Burroughs, Dr. C. Hart Merriam, Dr. E. W. Nelson, and others, it is not surprising that he found congenial and beneficial employment in photographing and later in collecting the more familiar birds and mammals about him, or that as his experience and enthusiasm grew during the three years of his convalescence he found himself gradually coming into possession of the working tools necessary to an active career in what ultimately became his chosen field of action.

By the time he had won back to robust health, as if in token of his debt to the interests largely responsible for it, his unorganized efforts gradually crystallized into definite purpose, and with slowly dawning ambition his entire energies were thenceforward to the end of life directed to the erection of a worthy monument to the vertebrate sciences. In furnishing some requested autobiographical notes to a Yale correspondent in 1926, he wrote:

> During the two years I spent in bed, or practically so, after my pump played out in senior year, my idea of values underwent a change. I had always been keen about the out-of-doors, but had never expected to make more than a hobby of it.
>
> When I began to get my strength back after my long siege, I therefore started studying and photographing birds and mammals simply as a resource in time of need. Due to luck and an out-door life, I awoke about 1916 to find myself a thoroughly husky individual, but too interested by that time in what started as a hobby, to forego it for a conventional business life.
>
> When I came west, Southern California utterly lacked a research museum effort. I was keen about Southern California and about research in vertebrate zoology, and determined to do what I could to further the establishment of a research center in the latter field. In the effort I have built up a study collection of nearly thirty thousand specimens [nearly doubled six years later] of mammals and birds, with a fair working library, etc. It remains to house it and build an institutional department around this nucleus. This is still an unaccomplished dream, but the attempt has been good fun and the ultimate outcome seems assured.
>
> Field investigations have been even more fun than the indoor work. They have taken me seven summers to Canada, among the moose, deer, bear, caribou, etc., and in 1923 to Laysan Island on a Government expedition to those out-of-the-way seabird rookeries of the mid-Pacific. We are now head over heels in the Central American field, and I chafe to be off for my first taste of collecting in tropical jungles next winter.

This reference to personal field activity recalls the fact that despite the close and arduous application to scholastic culture that resulted in the attainment of Phi Beta Kappa he yet found time throughout his collegiate years to keep alive an active interest in firearms and marksmanship, becoming captain of the University Gun Team. This in turn recalls his attendance at the Small Arms Firing School, Camp Perry, Ohio, as an officer candidate in 1918.

By 1926 the fast accumulating material, constantly augmented by an inflow of specimens from collectors stationed in various fields, chiefly at the time in Central America and later in Mexico, had attained such volume as to make necessary more commodious and more permanent housing, while his plans had been brought to such maturity as warranted decisive action in founding a research center under the jurisdiction of an established institution of learning. Such an institution, than which no better equipped or more ideally located exists in America, was most fortunately ready to his hand. In this year, through the courtesy of the Board and the Executive Council of the California Institute of Technology, at Pasadena, space was allotted in Throop Hall for work in vertebrate zoology, and at once as many of the great

cases of specimens as storage space permitted, together with all the books and library equipment, were established in the new quarters.

In a summation of the results of his collecting up to less than a year prior to his death, Donald Dickey had said apropos of the scope of the assembled material:

> It was felt from the beginning that any research center should have its home fauna adequately represented, so the collections are primarily strong in California material. This field was gradually expanded to include North America as a whole, but with the West particularly stressed. With this material in hand, the activity of our group was directed toward the Pacific slope of Central America. This decision was reached not only because of the convenience of Los Angeles as a base, but more particularly because of the fact that the University of California at Berkeley was

Fig. 14. Donald Ryder Dickey (center) in New Brunswick in 1916.

> working the Pacific field from California to Alaska, and because the eastern museums had done most of their Central American work on the Atlantic side, leaving a number of "blind spots" on the Pacific coast of Central America. Particularly strong collections are in hand from the almost unworked Republic of El Salvador, and more latterly from the State of Sonora, Mexico.

The supporting library, brought together with fine discrimination and sound judgment, consists of over seven thousand bound volumes and a great number of pamphlets, separata, excerpts and other unbound material. His book collecting was based on a studiously acquired knowledge of the vast literature of his twin subjects, and his careful selection of those items most needed for research rather than those of mere historic interest or associative value exhibits the same adherence to a well considered plan that marked his every move. This is not to say that he lacked the bibliophile's fine frenzy of excitement over "rarities" and "treasures" or even of "collector's items", but rather that he had his enthusiasms so well under control that he could confine his entire accumulative efforts to the filling of the many gaps among

his working tools. It is regretted that space here does not permit an indulgence in more details regarding this notable collection of books, but there is hope that the future may bring forth an annotated catalogue for the use of interested students.

The immense treasure of negatives, accumulated during years of patient and difficult exploration in the incult places at home as well as beyond many a wild frontier, has often been laid under tribute by authors and publishers. The late William Leon Dawson, himself reckoned a genius in photographic bird portraiture, drew heavily on these files for material to illustrate his monumental quartos on the birds of California. Mr. Arthur Cleveland Bent, who is engaged in compiling a definitive epitome of all that is known concerning the life histories of North American birds, has likewise used many of these studies in his Smithsonian Institution Bulletins, while other notable work of permanent value has been enriched by free access to this collection. Mrs. Dickey herself, who happily shares the interests of her husband, is soon to dedicate to his memory a popular key to the more familiar birds of the Southwest which will be illustrated by over a hundred full-page plates in full color selected chiefly from among these photographs.

It is remarkable that within the span of his comparatively short life Donald Dickey was able to bring his ambitious plans so near to complete realization. The foundation of his work was laid with patience and forethought, and his structure was reared with penetrating vision and undeviating purpose. There remained at the end only to raise the capstone of the arch. The results of this labor may well stand as a worthy monument to an industrious and useful life of which his family and friends may feel justifiably proud.

The name "Dickey" will be perpetuated in the systematic nomenclature of the American fauna as represented by the following birds and mammals:

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Phalaenoptilus nuttallii dickeyi Grinnell, Condor, XXX, March 15, 1928, p. 153.

Eumomota superciliosa dickeyi Griscom, Proc. New England Zool. Club, XI, October 31, 1929, p. 55.

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Microdipodops megacephalus dickeyi Goldman, Proc. Biol. Soc. Wash., 40, September 26, 1927, p. 115.

Urocyon littoralis dickeyi Grinnell and Linsdale, Proc. Biol. Soc. Wash., 43, September 26, 1930, p. 154.

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9. *An Inland Occurrence of the Common Tern. Condor, XXIV, January, 1922, p. 29.
10. *Early Nesting of the Tri-colored Blackbird and Mallard. Condor, XXIV, January, 1922, p. 31.
11. *The Validity of the Catalina Island Quail. Condor, XXIV, January, 1922, p. 34.
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13. *Breeding of the San Diego Titmouse on the Mohave Desert. Condor, XXIV, March, 1922, p. 63.
14. *Second Occurrence of the Yakutat Song Sparrow in California. Condor, XXIV, March, 1922, p. 65.
15. *Wintering of the Nuttall Sparrow in Los Angeles County. Condor, XXIV, March, 1922, pp. 65-66.
16. *Kern County Notes. Condor, XXIV, March, 1922, pp. 67-68.
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19. *The Iceland Gull (Larus leucopterus) in California. Auk, XXXIX, July, 1922, p. 411.
20. A Second Capture of the Broad-tailed Hummingbird in California. Condor, XXIV, July, 1922, pp. 135-136.
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23. Swamp Sparrow Recorded from California. Condor, XXIV, July, 1922, p. 136.
24. A Third Record of the Gray-headed Junco in California. Condor, XXIV, July, 1922, p. 138.
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FURTHER OBSERVATIONS UPON THE BIRD LIFE OF DEATH VALLEY

By JOSEPH GRINNELL

Some three weeks were recently spent by Mrs. Hilda W. Grinnell and myself in the Death Valley region of Inyo County, California. More precisely, we were carrying on daily observations within the below-sea-level portion of the Valley from October 13 to 30, 1933. The following notes pertain to that restricted area exclusively, and they are selected for publication as being supplementary to what I have already recorded as a result of two preceding periods of field work there. (See Proc. Calif. Acad. Sci., ser. 4, 13, 1923, pp. 43-109.)

Anthony Green Heron (*Butorides virescens anthonyi*). Dried-up carcass of one, in juvenal plumage, at side of an irrigation ditch on Furnace Creek Ranch, examined on October 22. Evidently long dead, this bird was likely waylaid at the usual time of the southward migration of this species, in the latter part of August or early September.

Greater Yellow-legs (*Totanus melanoleucus*). On October 21, we heard and saw repeatedly one individual at an over-flow pond below (west of) Furnace Creek Ranch. This was in the forenoon, sunshine bright, and the bird, when routed from its stand in the shallow water by our too close approach, was loath to leave the vicinity. It would start off in ascending flight southward, its call resounding more and more distantly; but presently it would be back again at the pond.

Western Horned Owl (*Bubo virginianus pallescens*). On October 16, 17 and 21, in the night, and especially early morning, 5:00 to 5:30, at our camping place in a tract of mesquites two miles down the Valley from Furnace Creek Ranch, we heard the notes of two horned owls, deep-toned and higher-pitched—male and female, respectively (we assumed this, following L. Miller, Condor, 32, 1930, p. 291). These notes for the most part came from the darkly shadowed, cliffy walls of the Valley immediately to the eastward. But at least once, the notes came from down on the flat.

On the 19th, about 9:00 a. m., west of the Ranch a mile or so, close to —200 feet altitude, we saw a horned owl perched about 12 feet above the ground on a mesquite bough in the weak shade afforded by the sparse foliage of this tree. While we inspected it satisfactorily with the binoculars at about 200 yards range, it proved too shy to allow of closer approach.

Desert Horned Lark (*Otocoris alpestris leucolaema*). Four horned larks were come upon on October 24 in a tract of scattering salt-grass on strongly alkaline ground within one-fourth mile south of Surveyor's Well, —60 feet altitude. Two of these were shot, becoming nos. 63265-66, Mus. Vert. Zool.; both males, weights 24.5 and 23.3 grams, respectively; lean, the first although the larger of the two was "thin", almost emaciated; wing-lengths, 107.2, 101.4 millimeters. In color-tone, these fresh fall birds are ashier than any other examples of *leucolaema* I have seen from California; they most nearly match fall birds from Colorado, whence in migration they may have come.

We saw horned larks the past October in the bottom of Death Valley only sparsely: near Triangle Spring, along the upper part of Salt Creek, near B. M. —248 feet seven miles or so north of Furnace Creek Ranch, and within two miles west of the Ranch. Only from one to eight birds were seen at any one time, and nearly always they were in flight.

I now think I was likely mistaken in my 1923 paper (*op. cit.*, p. 74) in assuming the birds seen in 1917 and 1920 in early April to have belonged to the race

ammophila, which race is resident at higher levels in the surrounding country. Indeed, as far as I know, the two birds now recorded as *leucolaema* are the first horned larks to be collected in the below-sea-level portion of the Death Valley region and therefore positively identified; and the birds seen in April may well have been of the same migrant subspecies. I know of no evidence to indicate that any horned larks pass the summer, in other words, breed, in Death Valley.

Northern Violet-green Swallow (*Tachycineta thalassina lepida*). Four seen on October 21, about 11:00 a. m., in flight over and around the Furnace Creek Ranch wood-pile whence the powder post beetles were emerging. No other swallows of any kind were seen during our stay in Death Valley.

Woodhouse Jay (*Aphelocoma woodhouseii*). One heard and then watched on October 19, about 7:30 a. m., perched and flying along line of mesquites a mile or so west of Furnace Creek Ranch, close to —200 feet altitude. Probably an autumnal vagrant from the Panamint or other not far distant mountain range.

American Magpie (*Pica pica hudsonia*). First seen on October 21 at 7:30 a. m., about one-fourth mile south of Furnace Creek Inn: two magpies in company of eleven ravens working over a newly dumped pile of rubbish out on the wash-fan. A boy we talked with said he had seen magpies in the vicinity only for the preceding four or five days. Thereafter we saw magpies almost daily; but the invasion of Death Valley by the species this year showed no sign of reaching the proportions recorded for the fall of 1919 (*op. cit.*, p. 74). All the evidence shows that magpies are quite irregular in their visitations so far south. On October 25 we saw one in the north end of the Valley, west of Triangle Spring. On the 28th, west of Furnace Creek Ranch below one of the overflow ponds, one was watched at close range as it worked energetically upon the desiccated carcass of a Great Blue Heron.

Western American Crow (*Corvus brachyrhynchos hesperis*). Seen several times on, or close to, Furnace Creek Ranch, but never more than two of them at one time. Status in Death Valley as an individual vagrant thus confirmed.

Arizona Verdin (*Auriparus flaviceps acaciarum*). [For nomenclature, see Grinnell, Condor, 33, 1931, pp. 166 ff.] Our finding of this species in Death Valley added a new species to the list of birds known from there, and a record station for California considerably to the north of the previous one. In the lines of mesquites and occasional screwbeans leading down west from Furnace Creek Ranch nearly to the edge of the "borax flat" (down to about —240 feet altitude) we heard or saw one to three individual verdins each day we looked especially for birds there.

Two specimens were taken, nos. 63267-68, female immature (weight 6.2 grams) and male adult (6.5 grams), taken respectively on October 21 and 22. On the latter date, at 8:10 a. m. when the adult male was shot, it was alone in a large thrifty screwbean and was carrying a feather in its bill. Soon we located the nest, of characteristic construction, 7 feet 10 inches above the ground in a mass of spiny dead twigs at the end of a branch from a screwbean and meagerly shaded by living branches and foliage roundabout. Feathers, mostly of the down type, of Desert Quail were sticking to the twigs around the downward directed opening into the nest. We saw no other verdin in the near vicinity and found no other verdin's nest anywhere in Death Valley, though when we became aware of the presence of the birds we kept looking for nests.

This now well known habit of constructing special "winter nests" has been interestingly described by Gilman (Condor, 4, 1902, p. 88) who says, in part, of the verdin: "Its range is easily determined by the great number of nests seen. A peculiar feature is the building, by both species, of winter nests in which to roost at night.

These nests are built in the fall and early winter and a male and a female nest are usually found near together, probably [built by] mated birds. They seem to have no idea of the conservation of heat or of energy by having a nest 'built for two', but go about making two [such] roosting places."

The fact that we did not find more nests, even though an estimated number of at least seven individual birds was checked, led us to think that these individuals had but lately arrived in the Valley. My visits of 1917 and 1920 had furnished no evidence of its presence then.

The only preceding published record of the verdin for Inyo County, is from Resting Springs where "a male was shot by Mr. [Frank] Stephens February 13, 1891" (Fisher, N. Amer. Fauna, No. 7, 1893, p. 142). This is within the drainage basin of the Amargosa River, but some fifty miles southeast of the sink of Death Valley. The species has been recorded regularly much farther to the southward, along the Mohave River as far down its course as Yermo.

During a week's stay at Shoshone, in the valley of the Amargosa "River", May 8 to 15, 1917, T. I. Storer (MS in Mus. Vert. Zool.) did not find any verdins among the birds then present there. However, Mr. M. French Gilman tells me that quite recently he saw the unmistakable nests of verdins in screwbean trees at Shoshone. It would appear that there has been a recent northward invasion, or possibly re-invasion, by this species, perhaps along a route approximating the lower course of the Mohave River which, though its "sink" is now in Soda "Lake", if of sufficient volume would join its waters with those of the Amargosa River and flow into Death Valley. (See U. S. Airway Map Upper I-11.)

Desert Bewick Wren (*Thryomanes bewickii eremophilus*). Although I did not find this wren at all in Death Valley in the springs of 1917 and 1920, it proved to be of fairly common occurrence in October of 1933. In the mesquite tracts in the vicinity of Furnace Creek Ranch, we checked from one to five individuals in each of six censuses of two to three hours duration. One specimen was taken October 21, no. 63270, ♀ immature, weight 9.3 grams; this is definitely of the subspecies *eremophilus*, which is known to breed in the Panamints and other nearby mountains. On October 23 and 25, one individual each day was noted in mesquites at Triangle Spring, in the north end of the Valley.

Western Mexican Bluebird (*Sialia mexicana occidentalis*). A bright-plumaged male, seen at 9:00 a. m. on October 28 in company of Audubon Warblers at edge of the "athel" plantation on Furnace Creek Ranch, was the only member of the thrush family we met with outside of Western Robins. The scarcity of berry-eating birds in Death Valley seems likely traceable to the total absence of mistletoe there, on either mesquite or screwbean.

Black-throated Gray Warbler (*Dendroica nigrescens*). One seen and shot (no. 63274, ♀ immature, weight 9.8 grams) in mesquite a mile or so west of Furnace Creek Ranch, about —200 feet altitude, on October 21. This was the only warbler detected in the fall outside of the common and wide-spread Audubon, and an occasional Yellow-throat on irrigated ground at the Ranch.

English House Sparrow (*Passer domesticus domesticus*). Furnace Creek Ranch now covers far more acreage than it did in 1917 and 1920. Although the cottonwoods which were then many, and some of them large, are now gone, there is much more arboreal growth as represented by lines and tracts of athel trees, a kind of evergreen tamarisk (*Tamarix articulata*) planted for shade and for fire-wood. Also there is now an extensive plantation of date-palms, in addition to the old Washington palms, tallest of all, which mark the site of the ranch from afar. All this has meant

shelter and doubtless also food in increasing amount for the English Sparrows. Although it is now more difficult to find them than in the previous years specified, I believe there are many more individuals present, in the aggregate.

The present superintendent of the Ranch, who has brought to marketable success the "Death Valley" brand of ripe dates, told me that he loses a good deal to the "sparrows". From my observations, I judge these "sparrows" to comprise mostly the English, although certain native birds may figure also. I saw the "Englishers" at pendant stalks of dates, and the gullets of the three birds I shot this year on the Ranch, each was distended with pulp of ripe dates mixed with broken pieces of powder post beetles.

Actual counts of birds on Furnace Creek Ranch, pencil-checked in one hour on each of two days, October 16 and 22, were 16+ and 17+, respectively. It was astonishing how quickly every bird, when once realizing it was being watched or stalked, could vanish—melt away through the trees without a chirp.

One afternoon at 4:00 we visited the Ranch wood-pile. The tiers of dry mesquite gave forth sound as of gentle rain—sound from the gnawing of innumerable larvae of powder post beetles. And here upon our arrival were about a dozen English Sparrows, in company of Audubon Warblers, a Say Phoebe, and a Shrike, catching the emerging adult beetles. The sparrows would often fly up from perches on the wood-pile and catch the beetles in flight. One shot with the aux, and the birds scattered, the sparrows in diverging courses, silently, in the direction of the palms and athels, not one to be seen again around the wood-pile the same evening. All the other birds, however, were back again beetle-catching within a very few minutes.

We had an ornithological surprise at Triangle Spring, October 23 at 11:00 a. m., when a pair of English Sparrows suddenly appeared in a nearby mesquite. The male was shot, proving by skull-character to be a bird-of-the-year; the female flew off in southward course and was not seen again. This point is 27 miles air-line up the Valley from the Furnace Creek Ranch colony, with territory of extremest desert type all the way between. This illustrates, perhaps, proneness on the part of first-year birds to scout out, even at much hazard, new territory. Certainly nothing in the vicinity of Triangle Spring could have been permanently attractive to these birds.

This year, four English Sparrows were collected in Death Valley, nos. 63275-78; two of them are adults, male and female; two, immature males. These I have carefully compared with samples of populations from elsewhere in the United States, and from the Hawaiian Islands, New Zealand and England—without finding any, appreciable to me, features of difference such as might have conceivably developed under the extreme climatic conditions of the Death Valley region. The freshness of the plumage in these four specimens makes them more significant for color comparisons than the samples I collected in the springs of 1917 and 1920 (see *op. cit.*, pp. 86-88). It is true that they are whiter ventrally than birds in corresponding plumage from elsewhere; but the latter birds are all probably town-taken and more or less soiled. The Death Valley birds are clean and of "pure" colors.

It would appear, then, that we must continue to wait for results from this "experiment in Nature"!

Thick-billed Red-winged Blackbird (*Agelaius phoeniceus fortis*). On October 23, at a bluff-side seepage within a mile south of Triangle Spring, four red-winged blackbirds alighted in some mesquites and one of them was shot. At Triangle Spring a lone male came toward evening of the 23rd and again next morning at

about 7 o'clock, seemingly circling down out of the sky, and hesitatingly but yet with an appearance of certainty going down through the concealing mesquite and arrowweed to the water. Maybe he knew this as a place to get "sweet" water to drink—or do passing birds "sense" the presence of water? A group of five redwings foraged in the mesquites about this spring for a time on the 24th. One was seen to disentangle and eat several of the web-caterpillars such as were almost completely defoliating the mesquites in the north end of Death Valley at this time.

Red-winged Blackbirds were also noted at Surveyor's Well, —60 feet altitude, along Salt Creek at two points, and in flocks daily on and west of Furnace Creek Ranch. It is now to be regretted that I did not take more specimens; I supposed them to be all of the race *nevadensis* to which race belonged all in the series taken in April of 1917 and 1920 (*op. cit.*, p. 78). The one saved, from the group of four near Triangle Spring, no. 63279, an immature male, I can only identify as of the subspecies *fortis*. And this arouses the suspicion that transient or wintering representations of the latter subspecies, which breeds in the Rocky Mountain region, may regularly reach the extreme southeastern parts of California.

The specimen in question provides measurements as follows: wing, 123 mm.; culmen, 23.7; bill from nostril, 17.2; depth of bill at base, 11.4. It exceeds in depth of bill any example I have examined from the breeding range of *nevadensis*.

A selection from the pencil-checked censuses of birds made by Mrs. Grinnell and myself will probably be of interest in comparison with the spring censuses published in my 1923 paper.

West from Triangle Spring across upper course of Salt Creek at about —80 feet; salt-grass, arrowweed, atriplex canescens, mesquite-crowned sand-dunes; October 25, 7:25 to 9:30 a. m.; air quiet, sky partly overcast. About 3 miles covered. Killdeer 3, Horned Lark 2, Magpie 1, Raven 2, Pipit 1, Shrike 1, Red-winged Blackbird 3, Sage Sparrow 2. Total 8 species, 15 individuals, in a bit over two hours. From my notes: Everything was astonishingly tame. The lone pipit tagged us for some distance. Then the shrike appeared and flew about us, seemingly trying to alight on Mrs. G. and then on me! Then the shrike took after the pipit, with possible malevolence, pursuing it zigzag low over the ground, the pipit however easily holding its distance. When the shrike gave up, the pipit turned and followed the shrike back, and alighted on the hard-caked, "self-rising" ground near where *it* did, on a meager arrow-weed. Company was sought, whoever it might be!

West from Furnace Creek Ranch, down to about —250 feet; through tracts of arrow-weed around overflow ponds and elsewhere, and along lines of mesquite nearly to edge of borax flat; October 21, 7:40 to 10:30 a. m.; day clear and not uncomfortably warm up to latter hour. Not over 4 miles covered, entirely off the Ranch. Marsh Hawk 1, Prairie Falcon 1, Desert Quail 20+, Coot 1, Killdeer 1, Greater Yellow-legs 1, Say Phoebe 3, Magpie 1, Raven 9, Verdin 2+, Bewick Wren 3, LeConte Thrasher 5, Robin 3, Western Gnatcatcher 2, Audubon Warbler 5, Black-throated Gray Warbler 1, Western Yellow-throat 1, Red-winged Blackbird 1, Green-backed Goldfinch 1, Gambel White-crowned Sparrow 1+, Western Savannah Sparrow 4 [one shot is *Passerculus sandwichensis alaudinus*], Song Sparrow 3 [one seen plainly was of *Melospiza melodia fallax* persuasion]; unknown 7 [too distantly or indistinctly seen to be sure of]. Total, 22 species, 77+ individuals, in close to 3 hours.

Furnace Creek Ranch, B. M. —178 feet; around edges of the sprinkled golf course, along lines of the quick-growing evergreen tamarisks along irrigation ditches; entirely on the Ranch; October 22, 4:30 to 5:30 p. m.; day clear, still a bit too warm for comfort even so late as 4:30. Cooper Hawk 2, Killdeer 3, Mourning

Dove 2, Red-shafted Flicker 2, Marsh Wren 5, Robin 6, Pipit 129+, Shrike 1, Audubon Warbler 5, English Sparrow 17+, Red-winged Blackbird 40+, Meadowlark 36+, Savannah Sparrow 2, Gambel White-crowned Sparrow 8+, Song Sparrow 3, unknown 4 [two of these flew up together from rank grass near where redwings were going to roost—notes strange to me—I ventured to guess "bobolinks"!]. Total 15 species, 265+ individuals in one hour.

To sum up: In 1923 I listed 124 kinds of birds whose presence one or more times in the below-sea-level portion of Death Valley had been established on good evidence. E. L. Sumner, Jr. (Condor, 31, 1929, p. 127) added the Golden Eagle, an individual of which species was seen by him on December 27, 1928, "perched in a dead tree by Bennett's Wells." In the present batch of notes there are added to the preceding records, six kinds, namely, Anthony Green Heron, Greater Yellow-legs, Western Horned Owl, Woodhouse Jay, Arizona Verdin, and Thick-billed Redwinged Blackbird. The total list of birds now known from the floor of Death Valley thus numbers 131.

Museum of Vertebrate Zoology, Berkeley, California, November 26, 1933.

COMMENTS UPON SYSTEMATICS OF PACIFIC COAST JAYS OF THE GENUS CYANOCITTA

WITH ONE ILLUSTRATION

By JAMES STEVENSON

During my study of the crested jays (*Cyanocitta stelleri*) carried on through the past two years, several special problems have arisen concerning the distribution of Pacific coast races. The descriptions of new forms from Oregon by Oberholser in 1932 have, in particular, stimulated my close attention to the crested (Steller) jays of the northwestern United States. In addition, the ranges given in the latest edition of the American Ornithologists' Union Check-List (1931) do not conform, in some cases, to the conceptions stated in other recent literature. In the present paper the author seeks to revise the concepts and ranges of the subspecies inhabiting northwestern North America. Particular emphasis is placed upon distribution in British Columbia, Washington and Oregon.

Two publications during the past thirty years have given special consideration to the systematics of Pacific coast crested jays. Walter K. Fisher (Condor, 4, 1902, pp. 41-44) discussed the ranges of subspecies occurring between Alaska and California, giving a careful analysis of coloration. Joseph Mailliard (Condor, 22, 1922, pp. 127-133) studied the jays of northwestern California and likewise discussed color in detail. A minute study of coloration as a requisite of subspecific analysis is not given in the present brief paper. Colors given here in quotation marks conform to plates in Ridgway's Color Standards and Color Nomenclature, 1912. Wherever feasible the specimens examined were recently collected birds in fresh fall plumage. The practice of using such skins reduced to a minimum the possibility of discoloration by fading and abrasion.

The species *Cyanocitta stelleri* inhabits areas, principally mountainous, of western America from southern, coastal Alaska, south to Nicaragua. Races of the species are, for the most part, resident where found. The present paper will consider only five subspecies, as follows: *C. s. stelleri, C. s. carlottae, C. s. annectens, C. s. paralia,*

and *C. s. frontalis*. Definition of the limits of ranges of these subspecies must be regarded as more or less arbitrary because of the gradualness of the intergradation of the races.

Cyanocitta stelleri stelleri (Gmelin)

This race was described by Gmelin from a specimen collected at Nootka Sound, Vancouver Island, British Columbia. The range of this subspecies is given in the A. O. U. Check-List (1931) as: "Pacific coast from the Alaskan peninsula, Alaska, south into Washington (including Vancouver and other coastal islands except the Queen Charlotte Islands)." In examining birds in various collections, I have been unable to find that mainland birds of southern British Columbia, opposite (east of) Vancouver Island or in western Washington, conform to typical *stelleri*. The range of *Cyanocitta stelleri paralia* of Oberholser (Scient. Publ. Cleveland Mus. Nat. Hist., 4, 1932, p. 7) is designated by him, as "western Oregon and western Washington, north to the mainland of southwestern British Columbia, exclusive of Vancouver Island; and east to the Cascade Mountains." There is no evidence, in the specimens examined, of typical *paralia* north of the latitude of Grays Harbor County, Washington. Recently collected birds from the vicinity of the city of Vancouver, in southwestern British Columbia and others west of the Cascade divide, in Canada, are intermediate between *stelleri* and *annectens*, the race of eastern British Columbia. Some superficially resemble the former race, either with backs "chaetura black" to "blackish mouse gray", or bellies "China blue" to "grayish violaceous blue." Others exhibit certain characters of *annectens* such as a white superciliary stripe, backs "deep neutral gray" to "dark neutral gray", or bellies dull "squill blue" to "chessylite blue".

There is some evidence to substantiate the belief that the range of *stelleri* is interrupted in western British Columbia in the region of the mouth of the Skeena River by the Rocky Mountain form, *annectens*. An infusion of light colored stock, of an *annectens* or intermediate type, has penetrated to the coast. A crested jay taken on Porcher Island in September was identified as *annectens* by Brooks (Auk, 40, 1923, p. 42). Another, collected a few miles north at Fort Simpson, was thought to exhibit "strong *annectens* characters" (Fisher, Condor, 4, 1902, p. 42). I have not had an opportunity to examine these skins for possible evidences of intergradation. There is some possibility that these were non-breeding birds that had straggled west from some inland area. No birds from the region immediately adjacent to the coast, northwest of Vancouver Island, have been available for examination. Birds of the coast and coastal islands, north to Porcher Island, will no doubt prove, when examined, to be *stelleri*. Twelve birds taken at Bella Coola, on an arm of Fitzhugh Sound, and fifty miles inland at Stuie, are intermediates, most of them nearer *annectens*. North of the Skeena River area, in southeastern Alaska and on the lower Stikine River, British Columbia, *stelleri* also occurs. Birds from these regions are not distinguishable from the Vancouver Island form in color or size.

The bird of the Kenai peninsula of central southern Alaska was once described as a distinct subspecies, *Cyanocitta stelleri borealis* by Chapman (Bull. Amer. Mus. Nat. Hist., 16, 1902, p. 240), but has not been recognized. The characters separating this race from *C. s. stelleri* were stated as larger size and darker coloration. A series of skins from the Kenai peninsula, including the type, and from the Prince William Sound region, east of the peninsula, has been examined. I have found no constant differences between birds of this general region and those of southeastern Alaska or Vancouver Island. The birds are very similar in color and size, although those from central southern Alaska are slightly smaller than jays from the other two regions considered.

Cyanocitta stelleri carlottae Osgood

This race, described by Osgood (North Amer. Fauna, no. 21, 1901, p. 46), is resident only on the Queen Charlotte Islands of British Columbia. It is not found on the coast east of these islands. Specimens of *stelleri* from southern Alaska, on Dall and southern Prince of Wales islands, exhibit very dark coloration but are not decidedly similar to specimens of *carlottae*. The latter possess backs ranging from "chaetura black" to "sooty black" and dark underparts ("jay blue" to "Berlin blue") showing that *carlottae* is the darkest of all races. The average measurements of this form proclaim it to be somewhat larger than *stelleri*. Minimum wing, tail and tarsus lengths of twenty-one specimens, including the type, are only slightly less than the average measurements of *stelleri*. However, average differences in the two races are slight with considerable overlapping of extreme lengths. These data lessen the value of measurements in subspecific determination. The characters that distinguish the races are not pronounced, yet the darker coloration of *carlottae* is apparent and fairly constant on birds of the Queen Charlotte Islands.

Cyanocitta stelleri annectens (Baird)

This race was described by Baird (Baird, Brewer and Ridgway, Hist. North Amer. Birds, II, 1874, p. 281) from a specimen taken at "Hell Gate", Missoula County, Montana. The subspecies ranges from southern Wyoming and eastern Oregon north into British Columbia. In British Columbia it occurs east of the Cascade divide, north, at least to Indianpoint Lake, near Barkerville (McCabe collection). The Black-headed Jay is one of several eastern American or Rocky Mountain forms of birds that range west, in central British Columbia to, or almost to, the coast. There is a broad area in the province inhabited by jays intermediate between this subspecies and *stelleri*. Sixteen specimens collected in the Hazelton region of the north-central part of the province are near *annectens*, but darker, with more brownish on the backs, thus grading into *stelleri*. The white superciliary stripe is a good diagnostic character of *annectens*, at least in the southern part of its range, but is not always present in birds of eastern British Columbia. This white marking is variable in Hazelton birds, being present in some, less prominent or absent in others.

In southern British Columbia *annectens* occurs east of the Cascade divide. Throughout much of its range this race inhabits forests of lodge-pole pine (*Pinus contorta*). West of the summit of the Cascade Mountains there are few, if any, typical examples of this subspecies. Recently collected specimens from southwestern British Columbia, that I have examined, have ranged about a mean, which is actually an intermediate form, with variations toward each of two races, *stelleri* and *annectens*. A number of specimens in the American Museum of Natural History were collected in 1889, at New Westminster, in the southwest corner of the province. These resemble *stelleri* but are slightly lighter in color, tending towards *paralia*. None of these shows evidence of intergradation with *annectens*. Allan Brooks tells me that "white-striped" jays were not found in southwestern British Columbia forty or more years ago. He is inclined to believe that there has been an invasion of *annectens* stock into this region within recent years. Such an invasion might account for the production of an intermediate population possessing superciliary stripes of varying prominence. One must conclude that there is a broad area of intergradation in British Columbia, and that this area is occupied by jays that are not typical of any one race.

Cyanocitta stelleri paralia Oberholser

The Evergreen Jay was named by Oberholser (1932, *loc. cit.*) from a specimen collected January 14, 1930, at Pleasant Valley, near Tillamook, Tillamook County, Oregon. In a large series including the type, available from Tillamook County, I have found much variation. The form is intermediate between *stelleri* and *frontalis* (not between *stelleri* and *carbonacea* as stated in the original description). Unfortunately Oberholser and the A. O. U. Check-List have disregarded the work of Mailliard (1922, *loc. cit.*) which showed that *C. s. carbonacea* is not found in western Oregon or northern California. *C. s. carbonacea* is confined to west-central California, principally in the San Francisco Bay region. The characters of *paralia* are best brought out in birds from the humid coast belt of western Oregon and southwestern Washington. The color of the back ranges from "deep mouse gray" to "dark mouse gray"; the color of the belly from "pale methyl blue" to "Chapman's blue". The range of this subspecies extends south at least to Lane County, Oregon, north, approximately to Grays Harbor County, Washington, and east, probably to the Cascade Mountains. Specimens from Beaverton, Salem and Corvallis, Oregon, are referable to this race. Birds of the Puget Sound region, Washington, show considerable variation in size and color. Those that I have seen from Tacoma, Seattle, or Puyallup are neither typical *stelleri* nor *paralia*, but show all degrees of intergradation. According to Edson (Murrelet, 13, 1932, p. 44), birds of the eastern base of the Cascade Range in Washington, along the Yakima River, exhibit intergradations with *annectens*.

The crested jay of eastern Oregon, in the Blue Mountains, is *C. s. annectens*. This race is found west to Crook County, intergrading there, and along the eastern base of the Cascade Range, with *paralia*. Average measurements of eastern Oregon birds are very similar to those of birds from the Rocky Mountains of Idaho and Montana. The former, however, show a tendency toward lighter coloration of the upper parts.

Cyanocitta stelleri frontalis (Ridgway)

This subspecies was named by Ridgway (Amer. Jour. Sci., ser. 3, 5, 1873, p. 41), from a bird collected in the Sierra Nevada near Carson City, Nevada. *C. s. frontalis* is found in the Sierra from southern Shasta County, California, south to San Diego County; also, in the northern inner Coast Ranges from Shasta County south to Sonoma County, and west, in Sonoma County, nearly to the coast. The race also occurs in the Sierra of extreme west-central Nevada. Birds of northwestern California and southwestern Oregon are intermediate between *frontalis* and *paralia*. Coastal birds of California, from Mendocino County northward, are similar to *frontalis* but slightly darker, being darkest in Delnorte County. Birds of Siskiyou and northwestern Trinity counties also resemble *frontalis* but are larger and darker. The color of the back in typical *frontalis* varies from "neutral gray" to "deep neutral gray"; that of the belly from "light cerulean blue" to "ethyl blue".

A supposed race of crested jay, *Cyanocitta stelleri syncolla*, was described by Oberholser (1932, *op. cit.*, p. 8) from a bird taken July 12, 1930, in the "Warner Mountains, 14 miles southwest of Adel, Oregon." This was considered "similar to *Cyanocitta stelleri frontalis* but decidedly larger; and somewhat darker, both above and below." The range of this race is limited to: "central southern Oregon and northeastern California", that is, the Warner Mountains and immediate vicinity. The type series, consisted of four females, one of which was the type, and two males.

I have examined a series of twenty-one Warner Mountains jays in the collections of the Museum of Vertebrate Zoology and the California Academy of Sciences. Comparison with the type series shows that the latter birds are extremely large individuals. This is unfortunate because it is misleading. In some cases minimum measurements of this small series exceed the maximum size of birds examined in the two western museums. Measurements of both series, together with averages for the two groups taken collectively, are presented at the end of this paper. Averages of this greater number of specimens show that birds of the Warner Mountains are not as large as was previously supposed.

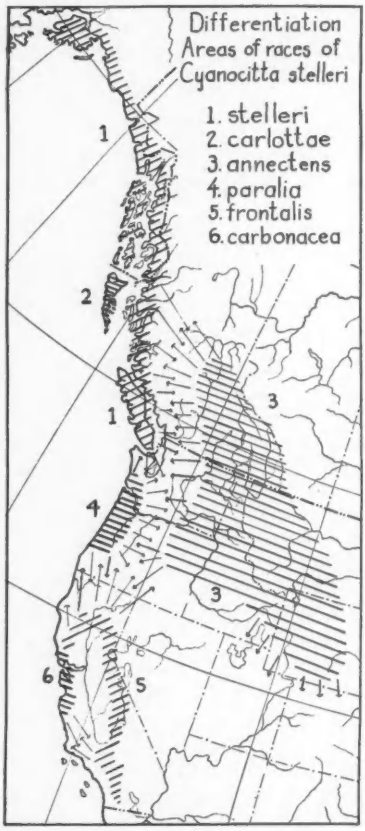

Fig. 15.

The Warner Mountains birds were compared with a large series from the central Sierra (Butte to Kern county) and with birds of the northern Sierra, since *"syncolla"* was described as "apparently the extreme development in a northeastern direction" of *C. s. frontalis* of the Sierra Nevada. The northern Sierran specimens which I used came from localities south and west of the Warner Mountains, in Lassen, Tehama, eastern Shasta and eastern Siskiyou counties, California. Since the type of *syncolla* was collected on July 12, it was thought advisable to compare specimens from the three areas, taken in the summer months, as well as in fresh fall plumage.

May and June Warner Mountains birds average slightly darker in color than birds of the northern Sierra, which, in turn, are slightly darker than birds of the central Sierra. The upper parts and wings of the Warner Mountains birds can be matched, however, by selected examples from the central Sierra. Summer or early fall specimens of the northern Sierran series are not quite as dark as Warner Mountains birds but are closely similar in size. Although fresh fall skins of the latter average slightly darker above than central Sierran birds, coloration does fall within the range of variation of the central Sierran form. Topotypes of *frontalis* are available from the vicinity of Carson City, Nevada, that match perfectly the colors of Warner Mountains birds of the same season (October). The latter birds are perhaps most closely related to the intermediate form of western Siskiyou and Trinity counties, California, birds that exhibit tendencies toward the darker and larger *paralia* of Oregon. The great length of the flight feathers of Warner Mountains birds may indicate an intermediate condition between *frontalis* and *annectens*, which possesses

the longest flight feathers of the races in the United States (average, 47 males: wing, 152.9 mm.; tail, 148.0 mm.; 24 females: wing, 148.6 mm.; tail, 143.9 mm.). The average measurements of *"syncolla"* fall within the maximum of *frontalis* and the minimum measurements of *"syncolla"* fall below the average for *frontalis*.

There is no good barrier to isolate jays upon the Warner Mountains. They nest in scattered coniferous areas across Lassen and Modoc counties between the Sierra and the Warner Mountains, and west of the latter range, in Lake County, Oregon. *Cyanocitta stelleri syncolla* appears to be based upon rather nebulous characters which do not justify its recognition.

In this study the material in the Museum of Vertebrate Zoology has been placed at my disposal. I am also indebted to Mr. A. J. van Rossem, Mr. Stanley G. Jewett, Mr. Kenneth Racey, Mr. T. T. McCabe, and the authorities at the American Museum of Natural History, Cleveland Museum of Natural History, United States National Museum, and California Academy of Sciences for the use of specimens under their charge or owned by them.

A distributional synopsis of the races of *Cyanocitta stelleri* in northwestern America follows:

Cyanocitta stelleri stelleri (Gmelin): Coastal central-southern Alaska south to Vancouver Island, British Columbia, including coastal islands of Alaska and British Columbia, except the Queen Charlotte Islands.

Cyanocitta stelleri carlottae Osgood: Queen Charlotte Islands, British Columbia.

Cyanocitta stelleri annectens (Baird): Eastern British Columbia south to eastern Oregon, southern Idaho and southern Wyoming.

Cyanocitta stelleri paralia Oberholser: Southwestern Washington and northwestern Oregon.

Cyanocitta stelleri frontalis (Ridgway): Sierra Nevada of California and west-central Nevada south to the Mexican line and west to include the northern inner Coast Ranges.

Cyanocitta stelleri carbonacea Grinnell: West-central California.

MEASUREMENTS IN MILLIMETERS OF CERTAIN GEOGRAPHICAL GROUPS OF *CYANOCITTA STELLERI*

	Wing	Tail	Bill (length from nostril)	Bill (depth at base)	Tarsus
Males, *stelleri*					
Prince William Sound and Kenai Peninsula, Alaska (12)	149.5	138.7	22.0	12.2	42.4
Southeastern Alaska (35)	150.3	139.0	21.9	12.4	45.8
Vancouver Island, B. C. (27)	149.3	140.5	21.7	12.0	46.2
Females, *stelleri*					
Prince William Sound and Kenai Peninsula, Alaska (7)	144.3	130.7	20.6	11.8	41.7
Southeastern Alaska (12)	145.3	133.8	20.7	11.9	44.7
Vancouver Island, B. C. (14)	144.6	133.2	21.1	11.4	45.0
frontalis					
Nevada, California (inner Coast Range and Sierra Nevada)					
males (87)	143.0	131.2	20.9	11.4	42.2
females (51)	137.4	126.6	20.1	11.1	41.2
Males, Warner Mountains					
Cleveland Mus. Nat. Hist. (2)	152.3	142.3	21.5	12.7	43.5
Mus. Vert. Zool., Calif. Acad. Sci. (15)	147.4	135.9	20.6	11.3	42.7
Average of 17 males	147.8	136.7	20.7	11.4	42.8
Females, Warner Mountains					
Cleveland Mus. Nat. Hist. (4)	144.6	132.7	18.7 (3)	10.8 (3)	41.1
Mus. Vert. Zool., Calif. Acad. Sci. (6)	138.6	126.7	20.3	11.0	41.7
Average of 10 females	141.1	129.1	19.8 (9)	10.9 (9)	41.5

Northern Sierra Nevada					
Lassen, Tehama, eastern Siskiyou and Shasta counties, California, males (13)	145.9	133.6	20.8	11.5	43.2
females (9)	141.1	134.5	19.7	11.0	42.3

Museum of Vertebrate Zoology, Berkeley, California, November 27, 1933.

THE ARIZONA STATE LIST SINCE 1914

By ANDERS H. ANDERSON

It is now nearly twenty years since H. S. Swarth published his "Distributional List of the Birds of Arizona" (Pacific Coast Avifauna, 10, 1914). This was the first comprehensive summary of Arizona ornithology since 1866. It has been the standard reference work in all studies of Arizona birds. From 1914 to the present date, however, numerous additions to the avifauna have been reported, and still more numerous changes in the nomenclature and status of the subspecies have been adopted by the new A. O. U. Check-list. Because many of the changes are widely scattered in the literature, it has been thought best to bring them together, in an effort to show the present status of the state list. The additional information, published since 1914, on the species listed by Swarth, is of such extensive character that there is no room for it in this paper. Only additions and changes are listed.

The A. O. U. Check-list of 1931 has been used as a starting point. Changes in spelling, generic splitting and lumpings, and priority changes have been omitted, except where they occur along with other changes that are listed. Alterations in names as adopted by the 1931 Check-list that are not the result of changed concepts of distribution in Arizona are also omitted. Proposed and controversial forms are, however, listed. Since it has not been possible to examine any specimens no attempt is made to judge the validity of the proposed changes.

I wish to express my thanks to Dr. W. P. Taylor of the United States Biological Survey at Tucson for his generous cooperation, not only in allowing me the full use of his library, but also for much helpful criticism, encouragement, and assistance. I am greatly indebted to Mr. H. S. Swarth of the California Academy of Sciences for valuable criticism and suggestions as to the form and content of this paper.

Appreciation is expressed to Dr. Alden H. Miller and Dr. J. Grinnell of the Museum of Vertebrate Zoology, Berkeley, Dr. H. C. Oberholser and Mr. E. A. Goldman of the United States Biological Survey, Washington, D. C., Mr. Edwin D. McKee, Park Naturalist, Grand Canyon, Arizona, and Dr. Witmer Stone of the Academy of Natural Sciences, Philadelphia, for suggestions and help in furnishing material which could not otherwise have been obtained.

GROUP I

SPECIES AND SUBSPECIES NEW TO THE STATE SINCE THE 1914 LIST

Gavia arctica pacifica. Pacific Loon. One taken September 20, 1886, at Fort Verde, by Dr. Mearns (Cooke, Auk, 31, 1914, p. 403).

Colymbus auritus. Horned Grebe. An adult male taken October 16, 1932, at Stoneman Lake, south of Flagstaff, by Hargrave (Condor, 35, 1933, p. 75).

Pelecanus occidentalis californicus. California Brown Pelican. One shot by Mrs. J. L. Moore at Dos Cabezos, Cochise County, in the fall of 1914 or 1915 (Law, Condor, 26, 1924, p. 153). A flock of nine seen, March 23, 1925, above Otero Canyon, Babo-

quivari Mountains (Bruner, Condor, 28, 1926, p. 232). The subspecies is of course assumed in this sight record by Bruner.

Hydranassa tricolor ruficollis. Louisiana Heron. "Arizona (near Fort Verde, September 24, 1884)" is the only information given by Bent (U. S. Nat. Mus. Bull., 135, 1926, p. 177).

Chen rossii. Ross Goose. One taken October 24, 1887, at Fort Verde, by Dr. Mearns (Cooke, Auk, 31, 1914, p. 403).

Nyroca collaris. Ring-necked Duck. A male taken, February 19, 1910, at Sacaton by Gilman (Condor, 16, 1914, p. 260). Breeding at Marsh Lake, White Mountains, elevation 9000 feet, in June 1915; about fifteen pairs seen and two nests found (Goldman, Condor, 28, 1926, p. 162).

Coragyps atratus atratus. Black Vulture. There are numerous sight records of this species, most of them in later years. The first two specimens were taken by Vorhies, March 21, 1933, from a flock of 30 birds, near Sells (Indian Oasis), about sixty miles west of Tucson, on the Papago Indian Reservation (Condor, 35, 1933, p. 205).

Astur atricapillus striatulus. Western Goshawk. This is the breeding form in Arizona (A. O. U. Check-list, 1931, p. 64; Peters, Check-List of Birds of the World, 1931, p. 208). True *atricapillus* occurs as a migrant or straggler. No records of specimens of *striatulus* have been found in the literature available.

Buteo borealis kriderii. Krider Hawk. One taken, October 12, 1931, near Doney Park, elevation 6500 feet, Elden Mountain, Arizona, by Hargrave (Condor, 34, 1932, p. 217).

Numenius americanus occidentalis. Northern Curlew. Specimens examined from "The Dam, Monument 179, Mexican Boundary Line," February 9, 1894, and "near Naris, Pima County," January 8, 1894 by Oberholser (Auk, 35, 1918, pp. 192-194).

Totanus flavipes. Lesser Yellow-legs. Dr. Mearns collected nineteen specimens between August 2 and 29, 1892, at the San Bernardino Ranch, near Monument no. 77, in southeastern Arizona (Lincoln, Condor, 29, 1927, p. 165). One taken August 14, 1932, at Ashurst Lake, south of Flagstaff, by Hargrave (Condor, 35, 1933, p. 76).

Pisobia melanotos. Pectoral Sandpiper. Two taken September 21, 1931, at a "tank," elevation 2900 feet, on the Santa Rita Experimental Range, by Vorhies and Gorsuch (Condor, 34, 1932, p. 46).

Larus californicus. California Gull. One taken November 20, 1932, at Long Lake, south of Flagstaff, by Hargrave (Condor, 35, 1933, p. 77).

Bubo virginianus pacificus. Pacific Horned Owl. Swarth included this under *B. v. pallescens* (Pacific Coast Avifauna, 10, 1914, p. 30). Dr. Oberholser writes me that "specimens from the Grand Canyon region and the San Francisco Mountains are practically undistinguishable from California specimens. The only other possible disposition of this bird is to consider it an abnormally dark phase of *Bubo virginianus pallescens.*" Mr. Edwin D. McKee, Park Naturalist, Grand Canyon National Park, writes me that he has collected a specimen of *pacificus* from the south rim of the Grand Canyon. Ridgway (U. S. Nat. Mus. Bull., 50, pt. 6, 1914, p. 745) agrees with Oberholser in the inclusion of Arizona in the range of *pacificus.*

Phalaenoptilus nuttallii hueyi. Desert Poor-will. Lower Colorado Valley in Arizona and California (Dickey, Condor, 30, 1928, p. 152).

Chordeiles minor hesperis. Pacific Nighthawk. Three specimens have been taken: one at Winslow, July 14, 1909, by C. Birdseye; one in the Huachuca Mountains, August 11, 1902, by H. S. Swarth; one at Tuba, August 18, 1909, by E. W. Nelson (Oberholser, U. S. Nat. Mus. Bull., 86, 1914, p. 49).

Centurus carolinus. Red-bellied Woodpecker. "Accidental in Arizona (Fort Grant)" (Ridgway, U. S. Nat. Mus. Bull., 50, pt. 6, 1914, p. 57).

Sphyrapicus varius daggetti. Southern Red-breasted Sapsucker. A female was collected February 9, 1910, and a male October 5, 1910, at Sacaton by Gilman (Condor, 16, 1914, p. 260). An immature male was taken January 17, 1923 at Rosemont, elevation 4700 feet, Santa Rita mountains by Dr. W. P. Taylor (Bailey, Pacific Coast Avifauna, 15, 1923, p. 22).

Dryobates villosus icastus. Chihuahua Woodpecker. The birds of southern Arizona have been separated under this name (Oberholser, Proc. U. S. Nat. Mus., 40, 1911, pp. 597, 612).

Tyrannus tyrannus. Eastern Kingbird. One seen by F. M. Bailey at Phantom

Ranch, Grand Canyon, May 19, 1929 (McKee, Preliminary Check-list, Birds, Grand Canyon, 1930, p. 7). While this is a sight record I believe the circumstances attending it will warrant its inclusion in the state list.

Sayornis phoebe. Eastern Phoebe. Two taken by H. H. Kimball; one at Paradise, east slope of Chiricahua Mountains, October 8, 1918, another at the same place August 16, 1919 (Condor, 23, 1921, p. 57).

Toxostoma curvirostre curvirostre. Curve-billed Thrasher. Resident in southeastern Arizona. Law (Condor, 30, 1928, p. 151) has taken specimens from the Chiricahua Mountains. Swarth (Proc. Calif. Acad. Sci., 18, 1929, p. 341) has taken specimens in the Patagonia region. Apparently the Santa Rita Mountains form the boundary between *palmeri* and *curvirostre.*

Hylocichla guttata sequoiensis. Sierra Hermit Thrush. Ten specimens have been taken in the state: one at Fort Huachuca, May 14, 1892, by Dr. A. K. Fisher (Cooke, Auk, 31, 1914, p. 404); two near the Santa Cruz River, ten miles south of Tucson, March 18 and April 18, 1918, by Kimball (Condor, 23, 1921, p. 57); one by Dr. W. P. Taylor, October 13, 1919 and one by Bailey, April 6, 1921, at Nicholson's Ranch, Santa Rita Mountains (Bailey, Pacific Coast Avifauna, 15, 1923, p. 59); five by Wetmore, two miles below Sedona, Coconino County, October 29, 1932 (Condor, 35, 1933, p. 164).

Regulus satrapa olivaceus. Western Golden-crowned Kinglet. Swarth (1914, p. 85) regarded this as hypothetical since no specimens had been taken. Cooke (Auk, 31, 1914, p. 404) then reported that one was collected in the White Mountains, September 14, 1908, by C. Birdseye. Swarth also collected one, October 24, 1922, on the northeast slope of San Francisco Mountain, elevation 7500 feet (Condor, 26, 1924, p. 190).

Anthus spraguei. Sprague Pipit. One taken April 4, 1905, at Fort Lowell, Pima County (Cooke, Auk, 31, 1914, p. 404).

Lanius ludovicianus gambeli. California Shrike. Migrates to southern Arizona (Miller, Univ. Calif. Publ. Zool., 38, 1931, p. 79). Dr. Miller writes me that two specimens were definitely placed with this race, one a female from Tule Wells, Yuma County, February 12, 1894, another a female from Ehrenberg on the Colorado River, March 28, 1910. He has examined others from Sonora immediately south of Arizona.

Passerina cyanea. Indigo Bunting. Two specimens have been taken: a male at Carr's Ranch in the Sierra Ancha, June 30, 1917, by Swarth (Condor, 20, 1918, p. 23); one in Ramsey Canyon, Huachuca Mountains, July 13, 1930, by S. G. Harter (Huey, Condor, 33, 1931, p. 129).

Hesperiphona vespertina brooksi. Western Evening Grosbeak. Grinnell (Condor, 19, 1917, pp. 20-21) restricted *H. v. montana* to southern Arizona and Mexico, and called the birds from north-central Arizona *H. v. warreni.* The A. O. U. Check-list of 1931, while concurring in the restricted range of *montana,* lumps the other three western races, *brooksi, californica,* and *warreni,* under *brooksi.*

Pinicola enucleator montana. Rocky Mountain Pine Grosbeak. Six seen at Jacob Lake Ranger Station, altitude about 7500 feet, Kaibab Plateau, June 24, 1929, by Vorhies (Condor, 32, 1930, p. 262-263). He verified Mr. D. I. Rasmussen's previous observation of these birds. Subspecific designation tentative pending taking of specimens.

Loxia curvirostra bendirei. Bendire Crossbill. Four specimens have been taken: two females at Carr's Ranch in the Sierra Ancha, June 16, 1917, by Swarth (Condor, 20, 1918, p. 22); a male at Jacob's Lake, Kaibab Forest, June 25, 1931, by Miller (Condor, 34, 1932, p. 99); a male at Coyote Range, San Francisco Mountain region, October 26, 1931, by Hargrave (Condor, 34, 1932, p. 219).

Zonotrichia querula. Harris Sparrow. One taken, March 16, 1913, at Sacaton by Gilman (Cooke, Auk, 31, 1914, p. 403).

Passerella iliaca iliaca. Eastern Fox Sparrow. A female taken, November 6, 1914, in Pinery Canyon, at 6000 feet, Chiricahua Mountains by A. J. van Rossem (Swarth, Univ. Calif. Publ. Zool., 21, no. 4, 1920, p. 118).

Passerella iliaca townsendi. Townsend Fox Sparrow. A male taken, November 28, 1914, in Pinery Canyon, at 6000 feet, Chiricahua Mountains (Swarth, Univ. Calif. Publ. Zool., 21, no. 4, 1920, pp. 146-147).

Passerella iliaca canescens. Inyo Fox Sparrow. A female taken, March 8, 1922, at Oracle, by Kennard (Condor, 26, 1924, p. 76).

Melospiza georgiana. Swamp Sparrow. One taken, December 22, 1915, about twelve miles east of Tucson, along Rillito Creek, by Howell (Condor, 18, 1916, p. 213).

GROUP II

ADDITIONAL SUBSPECIES NOT IN A. O. U. CHECK-LIST OF 1931

This group includes those which have been described or revived since the publication of the 1931 Check-list. I have also listed those which appear in footnotes of the Check-list since opinions on these differ. These are all subdivisions of subspecies now found in the state, either resident or migrant, and each one accepted will add another bird to the state list.

Corvus corax clarionensis Rothschild and Hartert. In southern Arizona Oberholser restricts *C. c. sinuatus* to the southeastern corner and places the western birds under *clarionensis* with some overlapping of ranges (Ohio Jour. Sci., 18, no. 6, 1918, p. 224). Swarth (Proc. Calif. Acad. Sci., 4th series, vol. 18, 1929, p. 314) does not believe more than one form can be recognized in southern Arizona. The A. O. U. Check-list recognizes only *sinuatus* (1931, p. 226).

Auriparus flaviceps ornatus (Lawrence). The birds of southeastern Arizona are separated under this name, true *flaviceps* being restricted to the area west of Tucson (van Rossem, Trans. San Diego Soc. Nat. Hist., 6, 1930, p. 201). Grinnell believes that *A. f. flaviceps* is properly the Lower California race and names the birds of western Arizona *A. f. acaciarum* (Condor, 33, 1931, pp. 167-168).

Catherpes mexicanus punctulatus Ridgway. The range of this subspecies includes central and southern Arizona, except the southeastern corner (Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, pp. 94-95).

Catherpes mexicanus polioptilus Oberholser. Range: "Southeastern corner of Arizona (Graham Mountains)", (Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, p. 95). *C. m. conspersus* extends over that portion (north-central and northern) of Arizona which is not occupied by *punctulatus* and *polioptilus.*

Lanius ludovicianus sonoriensis Miller. *L. l. excubitorides* in Arizona has been divided into two new races, *excubitorides* becoming extralimital. The range of the southern race *sonoriensis* is: southern part of the state south of Mohave, Yavapai, Navajo and Apache counties; permanent resident. A zone of intergradation between *sonoriensis* and the northern race *nevadensis* occurs over the plateau of the Mogollon Mountains and San Francisco Mountain (Miller, Univ. Calif. Publ. Zool., 38, 1931, pp. 67-68).

Lanius ludovicianus nevadensis Miller. Breeds in northern Arizona, some individuals migrating into southern Arizona (Miller, Univ. Calif. Publ. Zool., 38, 1931, p. 76). Dr. Miller writes me that he has examined two specimens of *nevadensis* from the Tunitcha Mountains, northeastern Arizona, taken June 26, 1927. Seven immature birds from San Francisco Mountain taken between September 7 and October 13 are intermediate. Others from the same region he has identified as *nevadensis.* Winter records are: a male taken at Tinajas Altas, Yuma County, and a female at Tucson, the latter taken February 28, 1905. He adds that there are "quite a few" other *nevadensis* records from Tucson which he has not listed. Van Rossem believes *nevadensis* is an intergrade between *gambeli* and *sonoriensis* (Trans. San Diego Soc. Nat. Hist., 6, 1931, p. 280).

Geothlypis trichas chryseola van Rossem. San Pedro River in Cochise County, southeastern Arizona, south into Mexico (Condor, 32, 1930, pp. 297-300).

Carpodacus mexicanus obscurus McCall. The birds of eastern Arizona are separated under this name by Figgins. The west slope birds he designates as *C. m. sayi* (Proc. Colo. Mus. Nat. Hist., 9, 1930, p. 3). According to a review in the Auk (47, 1930, p. 590) the recognition of this subdivision would not necessitate a substitution of *frontalis* by *sayi.*

Junco hyemalis connectens Coues. One taken on Granite Creek, about five miles northeast of Prescott just below the pine belt, January 10, 1927; another just southeast of Prescott, February 8, 1928 (Jacot, Condor, 34, 1932, p. 140). This race is lumped under *J. h. hyemalis* by the A. O. U. Check-list (1931, p. 345).

GROUP III

PROPOSED CHANGES IN SUBSPECIFIC NAMES

In this group are included proposed changes in the subspecific names of Arizona birds which have appeared in print since the A. O. U. Check-list was published, or simultaneously. Western birds, mentioned in footnotes of the Check-list, of which opinions seem to differ widely, are also listed.

Accipiter cooperii mexicanus Swainson. The western Cooper Hawks are considered to belong to this race (van Rossem, Trans. San Diego Soc. Nat. Hist., 6, 1931, p. 242).

Asturina plagiata maxima van Rossem. The Arizona birds are considered to belong to this race (Condor, 32, 1930, pp. 303-304).

Rallus limicola pacificus Dickey. Birds of the Pacific drainage are referred to this race (Condor, 30, 1928, p. 322).

Glaucidium gnoma californicum Sclater replaces *G. g. pinicola* Nelson, because the latter is regarded as only a color phase (Bishop, Proc. Biol. Soc. Wash., 44, 1931, pp. 97-98).

Hylocharis leucotis borealis Griscom. Birds of northern Mexico and Arizona are separated under this name (Amer. Mus. Novit. no. 379, 1929, p. 10). Reference not seen.

Platypsaris aglaiae richmondi van Rossem. The bird formerly known as *P. a. albiventris* is now restricted to Mexico and a northern race, *richmondi*, described to include the Arizona and Sonora birds (van Rossem, Proc. Biol. Soc. Wash., 43, 1930, pp. 130-131).

Nuttallornis mesoleucus majorinus Bangs and Penard. The birds of the west are separated under this name (Bangs and Penard, Proc. Biol. Soc. Wash., 34, 1921, p. 90).

Camptostoma imberbe ridgwayi van Rossem. This northern race is described to include the Arizona and Sonora birds, while *C. i. imberbe* is restricted to Mexico (van Rossem, Proc. Biol. Soc. Wash., 43, 1930, p. 130).

Polioptila melanura lucida van Rossem. Arizona birds are separated under this name, *P. m. melanura* being restricted to the Atlantic drainage (van Rossem, Condor, 33, 1931, p. 36).

Corthylio calendula cineraceus (Grinnell). Though this is restricted to the Pacific Coast by the Check-list, it is apparently the breeding form in Arizona. Oberholser lists two specimens taken at 9000 feet, Huachuca Mountains, October 24 and 25, 1929, by W. W. Brown (Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, p. 99). Others have also called the Arizona birds *cineraceus*.

Peucedramus olivaceus arizonae Miller and Griscom. The Arizona birds have been separated under this name (Amer. Mus. Novit. no. 183, 1925, 10). Reference not seen.

Dendroica coronata hooveri McGregor. This western race is accepted by van Rossem (Trans. San Diego Soc. Nat. Hist., 6, 1931, p. 283).

Dendroica nigrescens halseii (Giraud). Oberholser refers the Arizona birds to this new race (Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, pp. 101-102).

Sturnella magna lilianae Oberholser. *S. m. hoopesi* is restricted to central southern Texas and Arizona birds are referred to this new race by Oberholser (Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, pp. 103-104).

Piranga flava oreophasma Oberholser. This western race is accepted by van Rossem (Trans. San Diego Soc. Nat. Hist., 6, 1931, pp. 290-291).

Passerculus sandwichensis rostratus (Cassin). The Large-billed Sparrows are considered only subspecifically different from the *sandwichensis* group (van Rossem, Trans. San Diego Soc. Nat. Hist., 6, 1930, p. 218).

GROUP IV

ADDITIONS TO THE HYPOTHETICAL LIST

Otus asio aikeni. Aiken Screech Owl. One taken, October 4, 1873, on the San Pedro River, southeastern Arizona (Ridgway, U. S. Nat. Mus. Bull., 50, pt. 6, 1914, p. 695). Ridgway could not decide whether it was a stray migrant of *aikeni* or an abnormal variant of *cineraceus*.

Sayornis nigricans salictaria. San Quintin Phoebe. The A. O. U. Check-list (1931, p. 206) includes southern Arizona in the range of this form. The original description by Grinnell (Auk, 44, 1927, p. 68) did not mention Arizona. No reference to such an extension of range has been found in the literature. Dr. Oberholser writes me that all the specimens from the state that he has seen are of the typical form and he doubts that *salictaria* occurs "except as an occasional straggler."

Auriparus flaviceps lamprocephalus. Cape Verdin. One taken, April 18, 1891, by F. T. Pember at Gila Bend (Coale, Auk, 32, 1915, p. 106). The record of an apparently non-migratory subspecies so far from its normal range seems improbable. It should be considered a variant of *flaviceps.*

Hylocichla ustulata swainsoni. Olive-backed Thrush. An adult male taken September 12, 1929, in the Huachuca Mountains, at 5000 feet, by W. W. Brown (Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, p. 98). Dr. Oberholser says this specimen is "decidedly intermediate," though nearer *swainsoni.* The assignment of migrating intermediates to one camp or the other seems undesirable. *Swainsoni,* however, should occur in the state, but until more typical specimens are obtained I would leave it off the list.

Vermivora celata sordida. Dusky Warbler. One taken, December 20, 1918, near Yuma (Kimball, Condor, 23, 1921, p. 58).

Wilsonia pusilla pusilla. Wilson Warbler. One taken September 11, 1929, at 5000 feet, Huachuca Mountains (Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., 1, 1930, p. 100). This record and the preceding one I would omit from the state list. Since subspecies are so often characterized by average differences, it seems unsafe to admit specimens found so far from their normal range. A good scientific criterion for the assignment of subspecies, collected during migration, would be a band on one leg indicating point of departure. Not until far more intensive banding operations are conducted will we ever be really sure of the movements of closely differentiated subspecies. Some surprising movements of supposedly non-migratory races may be revealed if systematic banding is undertaken.

Leucosticte tephrocotis tephrocotis. Gray-crowned Rosy Finch. One seen at Grand Canyon Village, March 23, 1930 (McKee, Preliminary Check-list, Birds, Grand Canyon, U. S. Dept. Int. Bull., 1930, p. 13).

Leucosticte atrata. Black Rosy Finch. Four seen, December 8, 1924, at the Grand Canyon (Townsend, Condor, 27, 1925, p. 178). I would want specimens before admitting this record and the preceding one to the state list.

Pooecetes gramineus affinis. The winter range includes Arizona (A. O. U. Check-list, 1931, p. 340). I have found no substantiation of this in the literature available.

SUMMARY

In 1914 Swarth listed 362 species and subspecies from the state of Arizona. Since then 32 new records have been made and 3 new subspecies have been described (Group I). The grand total is now 397. The 9 proposed subspecies in Group II constitute 9 additions and 1 elimination. If these are accepted the total will be 405.

Tucson, Arizona, August 31, 1933.

FROM FIELD AND STUDY

Cooper Hawk Feeds on Eared Grebe.—On December 17, 1933, an employee at my place shot a Cooper Hawk (*Accipiter cooperii*) that was in the act of devouring an Eared Grebe (*Colymbus nigricollis*). This item of fare seemed to me to be sufficiently unusual to be put on record. My home is on Point Loma, about a mile from San Diego Harbor on the east, and the same distance from the Pacific Ocean on the west. The hawk had been frequenting the neighborhood for some time and on the morning when it was killed was seen to fly, with prey in its talons, from one low bush to another, in front of my house. The hawk proved to be a female in immature plumage. A wing of its victim was taken to the San Diego Natural History Museum,

where the identification was made.—JOSEPH W. SEFTON, JR., *San Diego Society of Natural History, San Diego, California, December 27, 1933.*

A Screech Owl Captured by a Snake.—An interesting incident was enacted near our house at the Parker Creek Experiment Station, Tonto National Forest, Arizona, on July 5, 1933. A heavy flapping of wings attracted our attention to an Arizona oak tree (*Quercus arizonica*) about five yards from the house. Approximately 12 feet from the ground, and quite close to the trunk, a snake over three feet long (probably *Pituophis catenifer rutilus*) hung suspended by its tail from a small dead limb. The large part of the snake's body was coiled once around a small owl, judged from its color and size to be a screech owl (*Otus asio cineraceus*). The bird struggled more and more feebly for three or four minutes, and finally was still.

When we shot the snake, its body grew slack, and its tail loosened its hold on the limb and began to slip. The owl freed itself and flew away, seemingly uninjured. The owl had apparently been roosting in the tree, and was "stalked" and caught by the snake. Dr. Walter P. Taylor was kind enough to give us the probable identification of snake and bird.—MRS. C. J. WHITFIELD, *Young Route, Globe, Arizona, December 22, 1933.*

Coots Breeding in the Tucson Region, Arizona.—As there seems to be no published record of the American Coot (*Fulica americana americana*) breeding in southern Arizona, the following may be of interest. At Bingham's pond, about six miles northeast of Tucson, coots were present in small numbers through the winter of 1932-1933. This irrigation pond is about a fifth of a mile long, very narrow, and is divided by dykes into three sections. The middle section was heavily overgrown with bulrushes (*Scirpus occidentalis*). Here the coots found shelter. About a dozen were seen at various times during the winter and spring.

On May 10, 1933, two very small, downy young with the adults were seen in a clear space among the bulrushes. They were noted again on May 20, 21, 22, and 23, somewhat larger in size. Late in the forenoon of May 23, I surprised a pair of adults with five downy young, another brood. I captured two of the young, and after examining them, I turned them loose. They swam at once for the bulrushes and were soon out of sight. Downy young were seen from then on until June 5, usually one to three birds at a time. Sometimes as many as ten adults were seen. I believe at least three pairs nested during the summer.

Several downy young were also seen by Dr. C. T. Vorhies of the University of Arizona. He located one nest of typical coot construction. It contained no eggs.

On July 2 the pond was again visited and five adults with fifteen apparently full grown young, all in one group, were seen in the open area at the east end. Due to the dry weather the pond was being drained frequently and the number of coots gradually diminished. On August 10 only one was seen.

This pond has been in use for quite a number of years, so it seems probable that coots have nested here in previous summers. More extensive field work in southern Arizona in the summer months will no doubt reveal other breeding sites in irrigated districts.—A. H. ANDERSON, *Tucson, Arizona, October 7, 1933.*

An Arizona Nest of the Ferruginous Rough-leg.—*Buteo regalis* was reported as a nesting bird in Arizona by Dr. Alexander Wetmore (Condor, 35, 1933, p. 163) upon the evidence of two immature, captive birds at Cañon Diablo. However, I believe the following to be the first record of the eggs actually having been taken within the state.

The nesting tree was located April 15, 1926, in Williamson Valley, at approximately 4700 feet elevation, twenty-five miles north-northwest of Prescott. The nest, a large bulky structure almost four feet in diameter and over five feet high, was situated about thirty-five feet from the ground at the top of a cedar. It was built of dead cedar sticks of which there were three distinct layers. The color and condition of the sticks indicated that the bottom layer was the oldest, and that the other layers had been added during successive years. The nest was well cupped and lined with shredded cedar bark. This was not a case of repairing an old nest as the Redtails frequently do, but of building new and complete nests, one on top of the other.

The eggs, three in number, and in my collection at the present time, were slightly

incubated. The behavior of the parents, while the eggs were being collected, was very much different from that of other large hawks of my experience. They circled continually overhead, uttered shrill cries, and dove twice to within a couple of feet of the nest.—E. C. JACOT, *Tucson, Arizona, October 19, 1933.*

The Status of *Phalaropus fulicarius jourdaini* Iredale.—Some years ago Mr. Tom Iredale described (Bull. Brit. Ornith. Club, 42, 1921, p. 8) a Palaearctic race of the Red Phalarope as being "separable at sight from the typical form (type-locality, Hudson Bay, North America) in the paler coloration of the edgings of the feathers on the back, scapulars, and tertials, ... in the present form they are only creamy and appear appreciably narrower." The type was taken July 7, 1921, at Liefde Bay, Spitzbergen.

I have recently had occasion to inquire into the validity of Mr. Iredale's form, basing my studies chiefly on the material in the Museum of Comparative Zoology, supplemented by a series of ten breeding birds collected by Mr. George Miksch Sutton on Southampton Island, kindly loaned me by Mr. W. E. Clyde Todd of the Carnegie Museum, and specimens loaned by Dr. Van Tyne from the Museum of Zoology, University of Michigan, comprising birds collected in June off the coast of Labrador, and breeding birds from the west coast of Greenland.

Laying out the material chronologically it is at once evident that the characters assigned to the proposed Palaearctic form have no taxonomic or geographic correlation but are the result of unusually rapid fading and wear. *Phalaropus fulicarius* carries its winter plumage well into the spring, but in most individuals nuptial dress is assumed by early May. Members of a long series taken off the Massachusetts coast at the time of the great flight between May 20 and 23, 1892, have the feathers of the upper parts broadly edged with shades between light ochraceous buff and ochraceous buff (females), or with ochraceous tawny (males). Birds from northeastern Asia (Nishny Kolymsk and East Cape) and the northern coast of Alaska taken early in June (1-16) show a decided paling of these colors, as do specimens taken in Labrador June 12, Southampton Island June 12-16, the west coast of Greenland June 8-9, and the east coast June 8 and 20. At this season birds from Siberia are indistinguishable from those taken in Greenland. In the series from Siberia and Alaska I have been able to trace the progressive wear and bleaching up to the time that the first traces of winter plumage make their appearance about July 20; in fact by late June and early July the prevailing color of the upper parts is black with narrow white or creamy white edges.

It is quite obvious, therefore, that *jourdaini* based on worn breeding birds collected early in July is nothing more than a synonym of *P. fulicarius* and shows once more that comparisons based on noncomparable series are misleading and only create erroneous impressions.—JAMES L. PETERS, *Museum of Comparative Zoology, Cambridge, Massachusetts, October 10, 1933.*

Second Record of the Red-billed Tropic-bird in Arizona.—On June 22, 1928, while in Pinery Canyon, Chiricahua Mountains, I called at the home of Mr. Frank H. Hands, who is always, as many well know, interested in the fauna, and helpful to visiting collectors. On this occasion Mr. Hands produced a mounted bird, of a species unknown to me, but which he presently informed me had been identified by Mr. J. Eugene Law as a Red-billed Tropic-bird (*Phaëthon aethereus*). Mr. Hands expressed a desire to present the specimen to the University of Arizona, and thus it came into our possession.

I later wrote to Mr. Law concerning this specimen and in the ensuing correspondence it was mutually agreed that he should publish the record of its occurrence. Before the record had been committed to print, however, occurred the regrettable passing of Mr. Law. In March, 1933, still having the matter in mind I communicated with Mrs. Law concerning the desirability of placing this record in the permanent literature. She graciously responded with a transcription of Mr. Law's notes and signified her desire that the record be published.

The essential facts are these. The bird was found on September 15, 1927, by Mr. Frank H. Hands and Mrs. Hands, alive, but apparently exhausted, in the road between the Dos Cabezos and Chiricahua mountains in "Apache Pass draw". Mr.

Hands had the bird mounted in Douglas, Arizona, and in January, 1928, sent the specimen to Mr. Law for identification. The latter's notes detail a careful comparison with a bird in the D. R. Dickey collection (no. 15153), on which was based the identification of the specimen as an immature *Phaëthon aethereus*. The bird was without any terminal plumes on the two central rectrices, concerning which point Mr. Law's notes read. "Terminal rectrices are broad, longer is 118.3 mm., both have black ½ inch tip already partly gone as indicated by incised V at the end. As the tip of the rachis is approximately .6 mm. wide and squared, there may have been a long terminal plume at the first maturity of the feather." Since the bird seems clearly to have been immature, and since the young are described as "central tail-feathers not elongated" (Alexander, Birds of the Ocean, p. 323), or "no long, central tail-feathers" (Bent, Life Histories of North American Petrels and Pelicans and their Allies [U. S. National Museum Bulletin 121], p. 189), it is difficult to understand just why the plume may have been considered a possibility, although it is true that the tips are partly gone.

The only other occurrence of this species in Arizona known to me was, like the present record, based on a collected specimen "taken by Breninger at Phoenix, April 10, 1905, . . . now in the collection of the American Museum of Natural History (cf. Miller, 1910, p. 450)" (Swarth, Pacific Coast Avifauna No. 10, 1914, p. 10).—CHARLES T. VORHIES, *University of Arizona, December 1, 1933.*

The Plain Titmouse of Northern Santa Barbara County, California.—In the writer's recent paper on the birds of southwestern California (Pac. Coast Avif., No. 21, 1933), the subspecific identity of the Plain Titmouse of northern Santa Barbara County was not stated, owing to lack of specimens from that region. Through the kindness of Ira N. Gabrielson, two specimens, a male and female, taken by him at Buellton, Santa Barbara County, February 17, 1933, have recently been examined and prove to be referable to *Baeolophus inornatus inornatus*. It seems probable, therefore, that, in the coastal district, the dividing line between *B. i. inornatus* and *B. i. transpositus*, of the San Diegan region, is along the Santa Ynez Range.—GEORGE WILLETT, *Los Angeles Museum, Los Angeles, December 10, 1933.*

A Full Set of "Runt" Mallard Eggs.—A set of "runt" eggs, shown in the accompanying photograph (fig. 16) was produced during the 1933 nesting period by the mallard that carries Biological Survey band 555414. This bird was banded on November 29, 1927, at the Rainbow End Game Refuge, Antioch, Nebraska, by F. J. Keller. She has returned to this station every year since, as follows: March 12, 1928, March 10, 1929, March 11, 1930, April 9, 1931, February 21, 1932, and March 12, 1933. [While this paper has been in press, Mr. Keller has reported that on February 4, 1934, Mallard No. 555414 again returned to his game refuge. This makes the seventh consecutive return for this duck.—F.C.L.]

A few days after the bird's first return in 1928, Mr. Keller noticed her on the roof of a barn and decided that she was searching for the site of her nest of the previous year, a haystack which had been standing at the end of the barn. In the meantime the hay had been fed, so Mr. Keller decided to offer her an artificial site. A box containing hay was accordingly placed on the barn roof. The duck immediately accepted it and has used the box for each succeeding nest. In 1928, 1929, and 1930, two sets of eggs were laid. Her total known egg production is as follows, the figures in parentheses being, in each case, the number that hatched: 1928, 16 (10); 1929, 18 (9); 1930, 22 (18); 1931, 12 (12); 1932, 14 (14); 1933, 14 (0). Total, 96 eggs, resulting in 63 ducklings.

Each year her young have been banded, and these have been recovered in several States and Canadian Provinces. Her own record for homing and for escaping the many and varied dangers that beset anatine life, is most remarkable, and interest in this Mallard is now enhanced by the production of the set of runt eggs here figured. This year (1933) she started to lay on April 12, and on the 18th Mr. Keller wrote the Survey that her nest held six runt eggs, adding the facetious comment that he guessed "the depression must have hit her."

Believing that our famous duck was entitled to a "better break" and feeling also that this set should be preserved, the author suggested to Mr. Keller that the eggs be carefully packed and shipped to the Biological Survey and that a set of normal

eggs be substituted. This was done, and 12 runt eggs were safely received by the Bureau accompanied by a statement from Mr. Keller to the effect that the complete set numbered 14, but two were broken in the nest. The duck accepted five normal eggs substituted by Mr. Keller, and on June 3 hatched five Pintail ducklings.

Comparison of the runt eggs with normal specimens shows the ground color to check very closely although the runt eggs are more heavily stained. The shell texture and thickness are normal except that the smallest eggs are more granular, par-

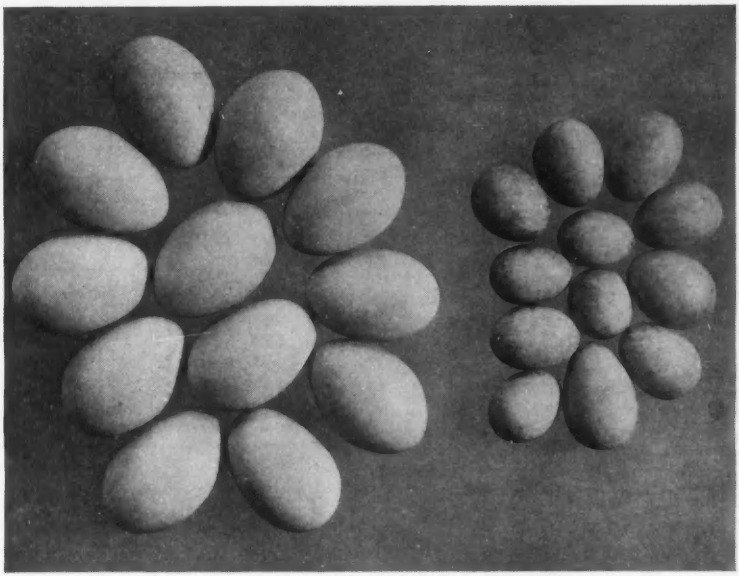

Fig. 16. Set of Runt Mallard Eggs photographed alongside a Normal Set of Equal Number. (All greatly reduced.)

ticularly at the larger ends. Measurements in millimeters are as follows: 45.0 x 30.1, 39.6 x 28.8, 38.7 x 29.7, 36.9 x 28.4, 36.9 x 29.1, 37.6 x 28.1, 36.8 x 27.8, 36.1 x 29.0, 34.8 x 25.1, 32.9 x 26.4, 32.8 x 24.9, 30.2 x 26.5. According to Bent (Life Histories of North American Wild Fowl, Bull. 126, U. S. Nat. Mus., 1923, p. 39) the measurements of 93 normal eggs average 57.8 x 41.6.

It is, of course, impossible to be sure why this set was abnormal. Mr. Keller reported that the duck apparently was in perfect condition. As she was fully adult when banded in 1927, her age is unknown, but it is quite possible that these runt eggs mark the final effort of the ovaries. The set has been deposited in the collections of the United States National Museum.—FREDERICK C. LINCOLN, *Biological Survey, Washington, D. C., October 3, 1933.*

Bush-tit Fighting its Reflection.—In the spring of 1933 my attention was drawn to the actions of a Bush-tit (*Psaltriparus minimus*) that for a long period battled with its reflected image in a second-story window of the bird department of the California Academy of Sciences. Day after day there was to be heard a persistent tapping on one particular window pane. Investigation disclosed an occupied nest in a tree about fifty feet away, suspended at about the same level as the window. The bird always returned to the same pane of glass, one of a series of windows extending the length of the building. Sometimes it fluttered up and down against

the glass, sometimes perched upon a twig that brushed against the window, but pecking always without cessation. Presumably this was the male; its mate sometimes perched nearby, watching the battle but never taking part.

I did not keep an exact record of the time during which this performance continued, but, roughly, it was throughout the month of April. Then there was peace for about three weeks. On May 18 the combatant returned to the window and for ten days more the battle raged. I do not know during what stage of the nesting activities this fighting went on, but during the interregnum, early in May, a flock of young birds was frequently seen in the nearby shrubbery. Perhaps the renewed fighting indicated the beginning of a second nesting.—H. S. SWARTH, *California Academy of Sciences, San Francisco, June 15, 1933.*

Blue-footed Booby in San Bernardino County, California.—On November 2, 1933, a bird was brought in to me for identification by Mr. Malone, the resident game warden. It proved to be a Blue-footed Booby (*Sula nebouxii*). The bird was shot November 1 at Big Bear Lake in the San Bernardino Mountains some thirty miles northeast of the city of San Bernardino. It had been observed flying about over the lake, occasionally plunging into it from a considerable height, for several days prior to the time it was shot.

The specimen has been made into a study skin and is now in the San Bernardino Junior College collection. A check was made on this species in the Los Angeles County Museum; Mr. George Willett, ornithologist there, informed me that two sight records, one accompanied by a photograph, have been reported from California. This specimen from Big Bear Lake seems to be the most northerly record.—ELTON R. EDGE, *San Bernardino Union Junior College, San Bernardino, California, January 3, 1934.*

White-throated Sparrows in Marin County, California.—During my many years of ornithological activity while residing in the San Geronimo Valley, Marin County, California, only three occurrences of the White-throated Sparrow (*Zonotrichia albicollis*) in that county had been recorded; nor had any of this species appeared at my banding station there (established in 1928) until the present fall of 1933, when one was noted on October 21. This was taken for the California Academy of Sciences as a record. The condition of the skull showed that it was an immature bird.

November 18 and 19 seemed to be the crest of the migratory wave of Golden-crowned Sparrows (*Zonotrichia coronata*) for this fall season and the traps were kept busy. An early rain had started the grass, destroying the seeds that these birds largely fed upon, which caused the birds to be in a better humor for appreciating the bait that was used to attract them to the traps.

Late in the afternoon of November 18, while I was banding some Golden-crowns at a little table near a battery of traps, there appeared from the large brush pile close-by, a White-throated Sparrow feeding unconcernedly upon the bait scattered from the trap that I had just placed upon the table. It paid no attention to me in spite of the motions I was making in taking from the trap and banding its occupants, and very soon it flew into a two-compartment Potter trap about twelve feet away, pecked around inside for a short while and calmly flew out again without touching the drop door release. This trick the White-throat played at two more traps in quick succession, greatly to my surprise and disappointment, and then disappeared. However, this sort of game could not be long kept up without something happening, and there was another day coming. It happened on the first round next morning and the White-throat was adorned with band numbered C155566. On being released the bird vanished from sight and did not again appear.

Incidentally, the three days passed at the station were about the busiest in its history, resulting in the banding of 74 Golden-crowned Sparrows and the recording of 116 "repeats" and 6 "returns", proving the immediate presence of 196 individuals of that species, which seems a fairly good number to find visiting a little half-acre garden. The banding dates of the "returns" varied from the fall of 1930 to the spring of 1933.

The next week-end trip to the station, November 25 and 26, showed but few new arrivals present, and only 15 Golden-crowns were banded; but birds already banded were there in great abundance. On November 25 another White-throat

appeared. It was soon taken and banded number C155616. It repeated once next day and was not seen again.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, California, November 30, 1933.*

The Mongolian Plover and other Birds at Goodnews Bay, Alaska.—The United States National Museum has just received a further small contribution of birds from Mr. D. Bernard Bull of Goodnews Bay, Alaska. The three birds were all collected at Goodnews Bay.

Charadrius mongolus mongolus. Mongolian Plover. An adult male was collected on June 10, 1933. This constitutes the fourth locality record for North America, the other three being from Choris Peninsula, where two were taken in 1849, Cape Prince of Wales, June 11, 1922, and Nunivak Island, where, in August and September, 1927. Mr. C. G. Harrold collected two and saw a few others.

Aphriza virgata. Surf Bird. One male, August 12, 1933.

Brachyramphus brevirostris. Kittlitz Murrelet. A female was collected on June 21, 1933. It has the abdomen more heavily barred with dusky than any of the few other specimens in the United States National Museum. The locality is of interest as this bird has been reported rarely north of the Aleutian Islands. However, in view of the paucity of northern data, this may not have any very definite significance. —HERBERT FRIEDMANN, *United States National Museum, Washington, D. C., November 28, 1933.*

The Black-tailed Gnatcatcher and the Dwarf Cowbird.—It was not until May 25, 1933, that I found a nest of the Black-tailed Gnatcatcher (*Polioptila melanura californica*) in this vicinity parasitized by the Dwarf Cowbird (*Molothrus ater obscurus*). The nest was four feet from the ground and near the top of a black sage bush growing on a dry hillside, a few miles east of Riverside, California, the type locality for this gnatcatcher. The nest was typical and without the ornaments on the outside which the Western Gnatcatcher always uses. There were four eggs of the owner and one of the parasite; they were fresh and the weight in grams respectively, 1.11 (the largest I have taken), 1.06, 1.03, 1.01, and 2.83. The average of thirty-eight eggs of this gnatcatcher that I have weighed is 0.99 gram and the smallest but 0.82 gram. Another nest was found in the same vicinity on the same day with three eggs, and when I visited it on May 27, one of the eggs had a hole in it for which I blamed a cowbird.

It must be that the Black-tailed Gnatcatcher has not suffered from the cowbirds to any great extent in any locality, as Friedmann in his book "The Cowbirds" fails to mention them as victims. In this locality one of the probable reasons for their escape has been due to their usual habitat being on the dry bush-covered hillsides or dry washes between 700 and 2000 feet elevation above sea level. Another reason is that they nest rather early, April 10 and May 30 being my records of extreme dates.

The usual complement of eggs of this gnatcatcher is four and I have never seen any more. The brooding bird can often be touched while on the nest.—WILSON C. HANNA, *Colton, California, November 28, 1933.*

Faulty Information on the Birds of Galicia.—In an article by Thomas T. McCabe and Elinor B. McCabe (Condor, 35, 1933, pp. 136-147) there are several references to J. P. Prazak's paper "Materialien zu einer Ornis Ost-Galiziens" (Jour. für Ornith., 45, 1897, pp. 225-348, 365-479; 46, 1898, pp. 148-226, 317-376). This article should never be quoted in scientific work. The author suffered from mental instability; his vast collections existed only in his imagination and his collectors were also non-existent. Those who wish for further particulars will find them in the Ornithologisches Jahrbuch (10, 1899, pp. 113-116) by von Tschusi, and by Dr. Lorenz von Liburnau in "Falsche Daten" (Die Schwalbe, 1899, pp. 129-137). (See also note in the Jour. für Ornith, 1899, p. 535, by Reichenow.) Prazak's tragic death and its attendant circumstances render it needless to say more. It is agreed among ornithologists to treat the paper as non-existent and never to quote from it.—FRANCIS C. R. JOURDAIN, *Whitekirk, Southbourne, Bournemouth, England, November 10, 1933.*

A Criticism of Certain "New" Subspecies.—In the Murrelet for September, 1933 (vol. 14, no. 3, pp. 78-79), there is an article by R. A. Cumming entitled "Descriptions of a proposed new race of song sparrow and of a hermit thrush" that calls for adverse comment, as embodying some of the most objectionable of current practices in ornithological taxonomy. A song sparrow is named from the Queen Charlotte Islands, a hermit thrush from the vicinity of Vancouver. The "descriptions" are severely brief, and deceptively authoritative in their technicalites. Yet these birds are named, not from remote, unexplored parts of the world, but from a region that is well known ornithologically; and they belong to species that have been carefully studied by others.

As meeting criticism of such publication, it has frequently been pointed out that anyone has the right to name anything he pleases. The existence of human "rights" of any sort is a debatable question, but it may be conceded here, at least in the sense that such action cannot be stopped. However, conscientious people exercising assumed rights should recognize accompanying responsibilities. The obligations in the case at issue include familiarity with, and recognition of, previous work by others (whether agreed with or opposed), and the labor of ascertaining and explaining the meanings that may be attached to observed variations. There have been all too many "descriptions" that append a barely diagnosed name to a bird or mammal, leaving it to others to work out the underlying principles and conditions that alone give any point whatever to the study.

When Major Brooks and myself prepared our "Distributional list of the birds of British Columbia" we aimed at more than a perfunctory compilation of records. Group after group of birds received as thorough revisionary study as was practicable, and the song sparrows were given careful attention. We assembled a large series in which the Queen Charlotte Islands bird had ample representation, and we found no grounds therein for a separate name for the song sparrow of that region. The study of this particular group was published as a separate paper (Condor, 25, 1923, pp. 214-223, map), a paper that, obviously, Mr. Cumming has not seen.

The western hermit thrushes have recently been subject matter for careful and detailed study by Thomas T. McCabe and Elinor B. McCabe, as appeared in the Condor (34, 1932, pp. 26-40), again a paper that, clearly, Mr. Cumming had not studied. Not one word of explanation is given for the naming of a subspecies of hermit thrush from Vancouver, when the type locality of *nanus* is Fort Vancouver, Washington, such a relatively short distance away and also in the humid coast belt.

The wording of the "ranges" ascribed to both song sparrow and hermit thrush is sufficient evidence of the scanty material the writer had at his disposal. My impression of Mr. Cumming's mental procedure is about as follows: That he acquired certain song sparrows and certain hermit thrushes that appeared to him to be different from certain other song sparrows and hermit thrushes in his possession, and that the ones that were unfamiliar to him were regarded as necessarily "new." The upshot of the matter is that he has added two more synonyms to an already over-stuffed literature.

As previously implied, any person's "right" to name subspecies is limited only by his ability to find a medium for publication. It seems to me, therefore, that a sensible policy to pursue, by editor, society, or whomever controls a given journal, at least as pertains to a region as well known ornithologically as North America, might lie in the discouragement of the publication of subspecific descriptions except when they appear as by-products of studies that incidentally disclose the actual need of new terms.—H. S. SWARTH, *California Academy of Sciences, San Francisco, November 1, 1933.*

NOTES AND NEWS

Shortly following the appearance of this issue of the *Condor*, members of the Cooper Ornithological Club will convene in San Diego for the Ninth Annual Meeting. Attention is called to the precise dates of the meeting, which will be March 30 to April 1, hence not beginning on March 29 as stated in an earlier notice. Sessions for the presentation of papers will be held on Friday the 30th, and on Saturday the 31st. The Board of Governors will meet on Sunday, April 1. Evening entertainment will be announced on the opening day. The San Diego Museum will consti-

tute headquarters for the meeting, and its staff will act as hosts. Out-of-town members may confidently look forward to a repetition of the high measure of success that marked the Third Annual Meeting held under the same auspices in 1928.—A. H. M.

Fig. 17. George Willett, Ornithologist at the Los Angeles Museum, Member of Cooper Ornithological Club since 1905, Member Board of Governors C. O. C., author of Pacific Coast Avifauna Numbers 7, 20 and 21.

Irrespective of the propriety of the main points in Mr. Swarth's sharp criticism (page 90 of this issue of the *Condor*) of a certain article in the *Murrelet*, there is one implication with which we do not agree. This is that the Editor of the *Murrelet* should be held responsible for the tenability of the "new" subspecies in the article criticised. We have examined the article in question and find it to show the results of care in the chief matters which an editor customarily attends to; namely, good English and clean typography. As to whether or not every fact and conclusion in that article will stand the test of current and future scrutiny, only God knows! Just think of the load of responsibility accumulated to date by the editors of the *Condor* and the *Auk*, if they are to be held to account for the tenability of every subspecies ever proposed in those magazines! The idea is grotesque.—J.G.

JOHN HOOPER BOWLES was born in Boston, Massachusetts, March 15, 1875. He died February 2, 1934, at Tacoma, Washington. His early rise in ornithology was rapid and thorough, under guidance of such masters as William Brewster and E. A. Capen, so that, before he came west he had gained much knowledge of the habits and lives of the eastern birds. The family came west in 1896 to Tacoma, where Jack spent the greater part of his life. The forests and fields of western Washington supplied most of the material that built his wonderful egg collection. This collection, containing some 970 species and subspecies of North American nests and eggs, has been given to the Ferry Museum of Tacoma. It is doubtful if any collection in the country, of its size, is as authentic and correct in identification. No set with the slightest doubt was ever added, and some of the small gaps could easily have been filled if Jack had cared to take a chance. Bowles was an active member of the A. O. U., an active member for thirty years of the Cooper Club, and Vice-President of the Pacific Northwest Bird and Mammal Society since its founding some fifteen years ago. Many of his articles appeared in the various ornithological journals; his greatest work, however, was in co-authorship with W. L. Dawson on the "Birds of Washington." Bowles never married, and he leaves two brothers, A. Gordon Bowles and C. W. Bowles, residing in California.—E. A. KITCHIN.

Here in California there is a flare-up of "vermin"-eradication contests under the auspices of local sportsmen's organizations and encouraged by the newspapers. Even boy scout troops are being prompted to participate in drives "to eradicate predatory birds." The origin of this sort of movement is not far to seek. One such "campaign," reported from Salinas under date February 8, 1934, is being marshalled by a "local taxidermist" and a local "sporting goods store owner" for the alleged purpose of "killing off blue jays, jim crows, hawks and other animals which *exact their huge annual toll* from the ranks of the game birds and animals [italics ours]." While the immediate motive here is not difficult to guess, for the prime stimulation we can go farther—to

the recent widely distributed pamphlet entitled "More Game Birds by Controlling Their Natural Enemies." The power of propaganda, in this case utilizing man's instinctive urge "to go out and kill something" (with double objective, the game in season and then the assumed enemies of game out of season) is again illustrated. The continual publicity issuing from high places, which employs such phrases as "predatory animals" and "enemies of game," promotes and renews this natural tendency of mankind to destroy whatever is imagined to be injurious to his immediate interests. Fortunately, in the present instance, certain Cooper Club members find themselves in position to expend personal effort toward stemming the local wave of anti-vermin activity. Among the conservationists in west-central California who are right now putting their convictions into practice, by bringing the facts and proper interpretations of natural history before the sportsmen's and other organizations concerned, are Mr. C. B. Lastreto, Mr. Laidlaw Williams, Mr. Dudley S. DeGroot, and Dr. Gayle B. Pickwell. It is to be hoped that some if not all of the announced "prize contests" will be given up.—J.G.

PUBLICATIONS REVIEWED

Edward L. Caum has summarized in a paper entitled "The Exotic Birds of Hawaii" (Occas. Papers Bishop Mus., 10(9), 1933, 55 pp.) the results of attempts at bird introduction in Hawaii. About 90 species have been tried, of which 32 are established, and 19 because of too recent importation or other factors are of uncertain status; the others failed. The risks of bird introduction are discussed, but the author seems in agreement with other residents that Hawaii needs more birds and should try for them regardless of risks. The species successfully established are about half game birds, doves, and pigeons, and the remainder a variety of passerine birds. One of them, *Munia nisoria*, "does considerable damage to green rice"; *Acridotheres tristis*, while frequently a nuisance, is deemed to do more good than harm; *Passer domesticus* "is, if anything, rather useful"; and *Carpodacus mexicanus frontalis* has not proved destructive. The publication is a valuable record and of great interest for its bearing on a highly controversial subject.—W. L. McAtee.

Das Sterbende Moor, by Otto Ehrhart-Dachan (Munich, Drei Masken Verlag, 1930, 152 pp.), is a poignantly beautiful tale of a wild and lovely moor where birds and beasts and water things found a safe haven among woods and streams. With masterly skill and fidelity to nature the author interprets the "humble happiness" of the fishes, telling of the lives of an ancient pike and a mighty carp. Thousands of birds—herons, storks, ducks, birds of prey and countless others—nested in the hidden swamps undisturbed by man. But man has so little love for beauty and for his harmless fellow-creatures that this sanctuary was made desolate through drainage and deforestation. It is a book that moves one to love of the gentle wild folk and to pity of their sad plight, as homeless and persecuted, they seek in vain a refuge on the earth.—Margaret M. Nice.

Valentin Haecker on Racial Differentiation (Haecker, Valentin. Phänanalytische Untersuchungen über Hochgebirgs- und Tieflandsvögel, mit besonderer Berüchsichtigung der Schilddrüse. Zeitschrift für induktive Abstammungslehre, 43, 1926, pp. 121-170, 2 pls., 2 charts, numerous line drawings).—With the voice of more or less depreciative criticism rather too often raised against the honorable profession of avian systematics as practised, and with the near-despair of the scientific systematist himself over the problem of extracting adequate data from limited and protean series which are jumbles of ages, sexes, plumages, localities and conditions, the suggestion of a new angle is very welcome, especially when it lays emphasis on cause rather than effect and brings reassuring evidence that our orthodox racial differentiations are more than "skin deep." Hidden as it has been in an unfamiliar German periodical, the work of the late Valentin Haecker on the crows of Germany and Switzerland in particular, and of the world in general, is far too little known. Haecker, who died in 1927, had since 1888 combined with a multitude of other zoological studies a persistent interest in ornithological problems, notably in the fields of the mechanism of song-production, feather color, and color races. Görnitz began his work on climate and color races, and Glasewald his work on the melanins, as dissertations under the

direction of Haecker. On the other hand the latter was an active histologist, with a special interest in chromosomes, and had worked on the distribution of melanophores in relation to variable areas of growth energy of the skin. The paper under review is a rather desperate introductory effort, hampered by limited material, to bring his results in all these fields of enquiry to bear directly upon the problem of the differentiation of one or two races of birds under sharply contrasting climatic conditions. Over and above its brilliant concrete results, the paper contains speculation which is equivalent to a program for a new school of racial variation, which the author did not live to carry on.

During the middle nineteen-twenties Haecker began to frame investigations with a view to the detection of the operation of climatic factors upon the birds of high altitudes and a dry climate at Davos in Switzerland and those of the neighborhood of his own university at Halle in Prussian Saxony. The original plan, which was to use both the indigenous crows (*Corvus corone*) and a series of other forms which had been introduced at Davos for variable numbers of years, proved too ambitious, as did the plan to include the adrenals in the histological studies, so that the bulk of the work actually completed consisted in the division of the crows into altitudinal races based on differences in the basal parts of the contour feathers and in the annual cycles of the thyroids. Rather elaborate examination of the second character, which occupies the bulk of the paper, demonstrated satisfactory histologic differences between geographic races of wild birds which are extremely close in external appearance. The whole cycle of annual changes, divided for convenience into four principal phases of thyroid condition and the transitions between them, was fully worked out in both races, and the inter-racial differences are decidedly qualitative. That is, when the two cycles are so adjusted that corresponding phases are superimposed, these are by no means identical, and the differences are not attributable to the regional differences in season and breeding period.

We cannot, of course, refrain from an immediate criticism or at least reservation, namely, that there is no real reason to believe such differences heritable. A vast amount of indirect evidence and a considerable amount of experimental investigation have given us confidence in the heritability, regardless of immediate effects of environment, of the average size differences and variations in color and pattern in fur and feathers which are the orthodox criteria of the named races of the higher vertebrates. For the histology of the endocrine glands we have no such body of evidence. Haecker himself, for instance, quotes data on differences, at least in size, in tadpole and in human thyroids from sharply contrasting environments, and we cannot be confident that the qualitative differences between the races of crows may not likewise be the result of immediate environmental influences rather than deeply seated, genetic characters. Such confidence may or may not come with the further application of anatomical and histological data to systematic problems.

Likewise, it must be understood that such diverse differentia are correlated only in so far as they exist at the same time in the same groups of animals. Whatever we may hope for, and, on the basis of other experimental work, be inclined to prophesy, as yet no causative interdependence is proved, and nothing new is adduced in support of the idea that either thyroids or adrenals are links in a chain of agencies through which the effects of the contrasting environments are translated into differences in gross morphology.

The external character which differentiates the two altitudinal races (the extent and color of the light feather-bases) is, however, rather closely linked to a narrow range of environmental factors, for, with the help of other ornithologists, large series of observations (especially by Stresemann) and of specimens from other crows of Europe, Asia, and the islands of the Pacific were secured, and in a large majority of instances the more extensive and whiter bases were found in birds which represented either very dry areas or high mountain areas, or, as at Davos, a combination of the two.

Pyrrhocorax alpinus, the Alpine Chough, from Davos, and spring series of House Sparrows from both Halle and Davos, were also investigated as to the histology of the gonads and the thyroids. Perfectly distinct inter-specific differences in the thyroid were found in all forms, and very striking sexual differences in the sparrows; but between the sparrows of Davos, where they were introduced at least fifty years ago, and the indigenous lowland birds of Halle, no difference was discovered.

A large fraction of the paper is neces-

sarily devoted to the technical minutiae of descriptive histology and microtechnique, but Haecker indulges in pregnant speculation both as to possible concrete climatic factors which might be involved in the differentiation of the crows and as to possible physiological agencies involved. Reverting to his own earlier work on "Farbenrassen", and to that of Görnitz, he is eager to detect the mechanism of physiological regulation of the types and intensities of melanin pigmentation, and finds the most promising fields in metabolic gradients, regions of differentiated blood supply, and especially in the results of his own work of 1918 on the distribution of melanophores in the axolotl in correlation with areas of greater or lesser energy of skin development. For reasons not wholly clear to the reviewer, possibly through temporal as opposed to merely regional variations in such factors, he believes them capable of operating not only upon unit areas of body surface, but perhaps upon parts or periods of individual feather growth, and so of producing the patterns of individual feathers as well as of the feather covering as a whole.—THOMAS T. MCCABE, *Berkeley, California, January 7, 1934.*

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at 8:00 p. m., Thursday, November 23, 1933, in Room 2003, Life Sciences Building, Berkeley. About seventy-five members and guests were present. Vice-president Alden Miller occupied the Chair. Minutes of the Northern Division for October were read and approved. Minutes of the Southern Division for October were read. The following applications for membership were presented: Mrs. Donald C. Frames, 1730 Middlefield Road, Palo Alto, Calif.; Mrs. R. E. Hackley, 807 Waverley St., Palo Alto; Miss Lulu Sours, 1027 Bryant St., Palo Alto; all proposed by Mrs. M. E. Davidson; and A. C. Shelton, Suite 1, 224 Massachusetts Ave., Arlington, Mass., by J. Grinnell.

Miss Margaret W. Wythe, Chairman of the program contest of the Northern Division, urged members to take advantage of the opportunities offered and presented each member with a memorandum of the contest rules.

Mrs. Allen asked for reports of Golden-crowned Kinglets and Mr. Cain replied that he had seen them on October 26 at the Oakland Scout Camp, where also on November 16 he had noted a Slender-billed Nuthatch and 2 Red-breasted Nuthatches. Miss Rinehart reported hearing and seeing a Barn Owl in the afternoon of November 13 at College Avenue and Dwight Way and asked whether the birds were Berkeley residents. Mrs. Price assured her that notes of the Barn Owl could be heard in that general neighborhood nearly any night in the year.

The evening's program was given by Mr. Ernest I. Dyer of Piedmont, who reported upon "A Year with the Thrashers" in a talk which for new natural history content has not been paralleled in the history of the Northern Division. A diagram of the oak-covered ridge on Selborne Drive at the head of Trestle Glen comprising the grounds about Mr. Dyer's home, and showing the sites of the five nests constructed by a single pair of the birds during the past nesting season, was drawn upon the blackboard. Lantern slides were used to illustrate the talk and at its close two reels of motion pictures of the Thrashers were shown.

There is a magic in the word "Selborne" and the secretarial mind reverts to the mood of Gilbert White when he wrote: "Faunists, as you observe, are too apt to acquiesce in bare descriptions, and a few synonyms: the reason is plain, because all that may be done at home in a man's study; but the investigation of the life and conversation of animals, is a concern of much more trouble and difficulty, and is not to be attained but by the active and inquisitive, and by those that reside much in the country."

All gratitude to Mr. Dyer for sharing with us these delightful observations from his suburban residence! Adjourned.—HILDA W. GRINNELL, *Secretary.*

DECEMBER.—The December meeting of the Northern Division of the Cooper Ornithological Club was held at 8:00 p. m. on Thursday, December 28, 1933, in Room 2003 Life Sciences Building, Berkeley, with about forty-five members and guests present and President Pickwell in the Chair. Minutes of the Northern Division for November were read and approved. Minutes of the Southern Division for November were read.

The following applications for member-

ship were presented: Miss Frances Carter, 1626 LeRoy Ave., Berkeley, Calif., by E. L. Sumner, Sr.; John Eldridge Cushing, Jr., 2525 Webster St., San Francisco, Calif., by James Moffitt; Prof. Willis H. Rich, 442 Jordan Hall, Stanford University, Calif., by Isabel McCracken, and Emery M. Whilton, Hotel Tulare, Tulare, Calif., by J. Grinnell.

The Chair announced the appointment of a nominations committee, to propose officers of the Northern Division for 1934, as follows: Mrs. Allen, Miss Pringle, Mr. Cain; the first named to act as chairman. Miss Wythe stated that entries for the program contest would remain open until the January meeting of the Northern Division.

Among observations of interest were the report of Mrs. Bracelin of a California Woodpecker seen on December 17 near the eastern end of Golden Gate Park; the shadow-fighting of a Hermit Thrush, noted by Mr. Swarth at the California Academy of Sciences in San Francisco, and similar activities reported by Miss Wythe of a Pipit at Giannini Hall on the Berkeley Campus. Mr. Grinnell said that on the date of the meeting (December 28) Mr. Linsdale and he had seen a swallow flying over the Campus at 3:30 o'clock in the afternoon. Upon looking up winter records it was found most likely to have been a Tree Swallow, as this species has been definitely reported from near Point Reyes in December. Looking from the window at about the same time, Miss Wythe said she had seen six or seven of the swallows.

Dr. Pickwell was the evening's speaker and talked about "Observations upon the Summer Birds of Sequoia National Park." His stay in the Park was from June 20 to 28, inclusive, and his interest lay in an analysis of the life zones, in watching the birds as individuals, and in testing avian relationships to forest-girt meadows. The little mountain meadows, fringed to their edges with tall trees, were constant homes to the Lincoln Sparrows and Pileolated Warblers, but only nurseries to the Juncos. About their edges, Traill Flycatchers nested; and fully half of all the forest species seen in the Park were observed to visit the meadows some of the time. That bird of the tree-tops, the Western Evening Grosbeak, came down daily to a little meadow stream.

Mr. and Mrs. Vernon Bailey were guests of the evening and it was a great pleasure to those present to meet them informally at the close of meeting. Adjourned.—HILDA W. GRINNELL, *Secretary.*

SOUTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, November 28, 1933, at the Los Angeles Museum, Exposition Park, Los Angeles, at 8:00 p. m., with sixty-five members and guests present and President Robertson in the Chair. Minutes of the Southern Division for October were read and approved. Minutes of the Northern Division for October were read. The membership application of James Tate, Route 1, Ontario, California, proposed by Harold Michener, and the application made by five Cooper Club members requesting the establishment of a local chapter of the Cooper Ornithological Club to accommodate members residing at the southern end of the San Francisco Peninsula, were presented. At the suggestion of the Chair, the motion was made and duly carried that the December meeting of the Southern Division be advanced one week because of the Christmas holidays.

Dr. Loye Miller called attention to the annual meeting of the Cooper Club to be held in San Diego in the Spring of 1934, and stated that after canvassing members of the two divisions the last two days in March, and April 1, had seemed to be the most fitting for the dates of the meeting. Mr. Chambers gave a report on Avifauna No. 21, the "Revised List of the Birds of Southwestern California," by George Willett, and said that it was proving to be much larger than at first estimated and he urged members to place their orders as soon as conveniently possible.

Mr. Willett mentioned it had been suggested to him that something be said about the present status of ducks and geese in California, with the idea of making certain recommendations regarding a change in the present hunting regulations. Mr. Pemberton, Mr. Ross, and Mr. Pierce each presented his opinion and also what hearsay information he had regarding various areas shot over for ducks. A motion was made by Mr. Pierce, seconded by Mr. Willett, and duly carried, that the Chair appoint a committee of three to investigate the status of the ducks and geese in California and the need of certain species for better protection.

Wright M. Pierce, chairman, George Willett, and J. R. Pemberton were appointed to serve on this committee.

Two White-tailed Kites were reported by Dr. Cowles as having recently been seen by him on the gun club at Playa del Rey.

In introducing Mr. and Mrs. Vernon Bailey, formerly of Washington, D. C., but now in residence at San Marcos, California, President Robertson spoke of the pleasure it gave the Southern Division again to greet them, and he expressed the hope that as they were now close neighbors they would frequently attend the monthly meetings of the Cooper Club. As speaker of the evening, Mr. Bailey presented his first topic, "The Asymmetrical Ears of the Owl," as an interesting bird study problem. He advocated the raising of young Saw-whet Owls and the close watching of their head movements to ascertain, if possible, just when and for what kind of sound the two different ears were used. The short talk on the owls was followed by motion pictures of the "Home Life of the Beavers," showing what has been done and is still being done by the Bureau of Biological Survey to assist in the rehabilitation of this valuable fur-bearing animal.

Meeting adjourned. — LAURA B. LAW, *Secretary.*

DECEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, Los Angeles, at 8:00 p. m., Tuesday, December 19, 1933. Twenty-eight members and guests were present and President Robertson occupied the Chair. The minutes of the Southern Division for November were read and approved. Minutes of the Northern Division were read. The application of Mr. Robert G. Hannum, 3634 Hughes Avenue, Palms, California, proposed by Mr. George G. Cantwell, was presented.

Dr. Loye Miller spoke with regard to the Wild Life Administration and Pest Control Relations Committee, which is a committee provided for in Senate Concurrent Resolution No. 26, California 1933 Legislature, and is presided over by the president of the University of California. As president of the Board of Governors of the Cooper Ornithological Club, Dr. Miller had been asked to act for both divisions of the Club and to appoint a representative for membership on this committee. He announced the appointment of Mr. Thomas T. McCabe to represent the Cooper Club, because of his interest in conservation and because of his non-affiliation with the University.

Mr. Wright M. Pierce, chairman, gave the report of the Committee on the Present Status of Ducks and Geese in California. The content of this very able report was discussed. The term "three-shot gun" was explained by Mr. Chambers, and Mr. Willett outlined the provisions of the Duck Stamp Bill. On motion by Dr. Miller, seconded by Mr. Robert T. Moore, and duly carried, the report of the committee was accepted and adopted. The secretary was instructed to send a copy of the report to the Northern Division, with the request that after final action is taken the report be published in the Condor.

The Chair announced the appointment of the following members as a committee to present names of officers for the Southern Division for 1934: Dr. Louis B. Bishop, chairman, Mr. George Willett, and Dr. Loye Miller.

The speaker of the evening was Mr. Adriaan van Rossem, recently returned from several months spent in Europe. Starting with the birds noted while on board ship, he outlined his trip abroad and his visits to some of the European museums. Mr. van Rossem's first visit was made to the National Museum of France, in Paris. From there the museums at Metz, at Lyon, and at Dresden, the Berlin Museum, the one at Munich, and the Leyden Museum, in Holland, were each visited and we were given a brief description of how the bird collections are displayed, the condition of specimens seen, and the facilities for study. From Germany, Mr. van Rossem went to England and spent some time in the British Museum, which houses the largest collection of birds in the world—over a million specimens. Questions were answered as to methods established in the European museums with regard to curatorial care, specimen data, cataloging, etc. In concluding his talk, Mr. van Rossem spoke of his attendance at the recent meeting of the American Ornithologists' Union, held in New York, and of some of the papers that were presented.

Adjourned.—LAURA B. LAW, *Secretary.*